Advice from the Stars: The Micro-zodiac in Seleucid Babylonia

by M. Willis Monroe

Department of Egyptology and Assyriology – Brown University
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Date: _____ _____

John M. Steele, Advisor

Recommended to the Graduate Council

Date: _____ _____

Matthew T. Rutz, Reader

Date: _____ _____

Francesca Rochberg, Reader

Approved by the Graduate Council

Date: _____ _____

Peter M. Weber, Dean of the Graduate School

Curriculum Vitae

M. Willis Monroe was born January 4th, 1986 in New York city. After graduating from the Moses Brown School in Providence, Rhode Island he went to London to begin studying Assyriology. He earned a BA (Hons) Ancient Near Eastern Studies and MA Ancient Near Eastern Languages from the School of Oriental and African Studies, University of London in 2007 and 2008 respectively. In 2010 he began a PhD program in Assyriology at Brown University in the Department of Egyptology and Assyriology. In 2013 and 2013 he was a participant in the Advanced Seminar in the Humanities held at Venice International University. In 2014 he was the recipient of a fellowship from the American Academic Research Institute in Iraq (TAARII) as well as Joukowksy Summer Research Award to conduct dissertation research in European museum collections. From 2007-2014 he worked as the registrar for the Ziyaret Tepe Archaeological Expedition in south-eastern Turkey.

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1 Introduction

1.1 Introduction

The complexity of Hellenistic Babylonian astrological texts owes much to the scribes and scholars who wrote and copied earlier scholarly tablets. Many of the developments in form and content seen in texts from Hellenistic Babylon and Uruk can be traced to the work of Neo-Assyrian scribes working in the great libraries of the royal cities. These developments often happen in piecemeal ways, with one particular text or genre using a new style of formatting, or another text linking divinatory omens through a novel method of analogical reasoning.[1] By the Hellenistic period many of these developments are combined onto single tablets, representing an engagement with a long history of scholarship by the scribes of the late period.

The micro-zodiac texts typify this scribal development, representing the melding of a wide variety of traditions, from tabular formatting to the use of the zodiac. This dissertation seeks to re-analyze the previously published micro-zodiac tablets and integrate a larger number of new fragments in order to gain a clearer picture of the entire textual series extant in Hellenistic Babylonia. The interconnected nature of the text through its relationship with other genres of ancient scholarship and traditions of textual representation make the micro-zodiac an excellent source for investigating Late Babylonian scholarship.

1 Sachs qualifies the these attempts as a form of "creative idiocy", and while I might not agree with the idiocy part, I certainly find the composition of these texts exceedingly creative: "Speculative ingenuity of the sort which set up systems of predictions for various combinations of the planets and signs of the zodiac, etc., could with justice also be claimed as Babylonian, but this type of creative idiocy does not seem to be restricted to any region or period."(Sachs 1952, 52). For a more positive take on the role of inferential reasoning in divinatory texts from Mesopotamia see (Rochberg 2009).

While it is tempting to use the striking visual character of the micro-zodiac texts, especially the two illustrated tablets from Uruk, to characterize them as a unique experimental form of late scholarship, contemporary scribal culture makes it clear that the micro-zodiac was assembled from a wide variety of sources which were, in their own way, expressing developments in the field of astrology during the Hellenistic period.

1.2 Astrology and the Zodiac

For the purposes of this dissertation I define astrology as the derivation of non-obvious connections between the human experience and celestial phenomena. The sun rays warming your skin is an obvious effect related to its position in the sky, just as the dark nights associated with the new moon. Non-obvious relationships include the location of a planet affecting the length of the reign of a king, or the outcome of the land. For the micro-zodiac these include relationships between plants, gods, daily activities and the position of the sun and moon.

Astrological reasoning benefits from schemes and paradigms which help to structure the systems of analogical connection between celestial body and effect. The texts in this dissertation make use of the zodiac as the guiding structure. The zodiac is a division of the ecliptic into twelve equal parts each measuring thirty degrees. The names of the zodiac signs are taken from constellations which are either present within the thirty degree division or are nearby. The micro-zodiac texts take the zodiac one step further by sub-dividing each of the original twelve signs by twelve again, creating 144 pairs of original and new sign (here termed Major and minor signs).

For the purposes of familiarity with the contents from the outset I am including in this introduction a brief overview of the micro-zodiac material. A micro-zodiac table is generally made up of four main rows with two ancillary rows and a heading. The headings, four main rows and Number Row are divided into twelve columns. The four main rows contain a variety of different content depending on the location within the scheme. The Material Row contains materials probably used in medical treatment. The Calculation Row spans the entire width of the tablet and concerns calculations similar to the astrolabe tradition. Row A contains omen apodoses taken from Enūma Anu Enlil and other divinatory texts. Row B references cultic observances. Row C contains daily advice. And finally, the number row always counts down from the left most column and is closely related to the Calculation Row. Below is a typical column pulled from Text 7 (VAT 7847+):

Heading	Scorpio
Material Row	Bricks of Uruk juniper *šimrānu*-plant chalcedony
Calculation Row	3;20 Leo, upper portion of Jupiter, at sunset 1;40, 1;40 those (stars) of Anu at sunset 50, 50 those (stars) of Ea at sunset 25, a sign of these cities Leo, the land of Akkad, makes a decision, you make a prediction
Calculation Row 2	3;20 times 15 is 50 for the years of the king ... 3;20 times 15 is 50, 50 the circumference of the sun this is the circumference of the moon and sun ...
Row A	Place of earthquake, enemy attack, lighting and silt. Jupiter is very weak, Mars is bright, there will be hostilities.
Row B	Day of opening the gate of Allatu and

	the great warrior Nergal.
Row C	Legal battle will be decided, god or man or goddess, snake.
Number Row	1;47

1.3 The Textual Corpus

The corpus contained in Chapter 3 is almost entirely made up of texts in two major collections, the British Museum in London and Vorderasiatisches Museum in Berlin. One fragment is in the Louvre in Paris, and an additional tablet is located in the Iraq Museum in Baghdad. The texts in Chapter 3 all contain material that is identified as part of the micro-zodiac corpus. Crucially, they all contain multiple rows of the standard micro-zodiac table which implies a relational understanding of the overall structure of the series, thus linking them explicitly with the idea of the micro-zodiac. This means that the data contained on the tablets in Chapter 3 conforms to the micro-zodiac scheme. This separates them from the texts investigated in Chapter 4, which contain similar and in some cases parallel content but do not use the micro-zodiac scheme to organize their data.

1.4 Previous Scholarship

The micro-zodiac texts as a corpus have been known since the early 20th century when the pioneers of Babylonian astronomy were cataloging and identifying the various types of texts within museum collections. One example from Uruk split into two pieces in Paris and Berlin attracted attention because of its zodiacal illustrations. And in fact much of the earliest scholarship around these texts focused on their illustrations. Weidner used the illustrations

from the Uruk tablets in an article on the description of constellations.[2] The texts were first collected as a series by Abraham Sachs in an article on Babylonian Horoscopes, although some of the tablets had been commented on earlier by Weidner and other scholars.[3] Weidner published a comprehensive edition of the known micro-zodiac texts at the time in 1967.[4] Since then they have often been refered to in discussions of astrology in Mesopotamia, serving as a particular good example of the divergent practices, along with horoscopy which define the practice of Late Babylonian astrology.

1.5 Aims

The dissertation has three discreet aims, to contextualize the micro-zodiac in Mesopotamian scholarship, present new data on the text itself through re-edited and newly edited cuneiform texts, and finally to explore the implications the text has on an understanding of the role of format and layout in the organization of knowledge.

The first goal of this dissertation is to place the micro-zodiac texts within their ancient scholarly context and investigate the ways in which they were conceived, composed, and read. The micro-zodiac texts represent an attempt by scribes to essentialize and organize a diverse set of traditional forms of knowledge within the structure of the zodiac. Because of this, we must accept that the composition of the text was more labor intensive than the composition of a traditional scholarly text. While a number of developments in the micro-zodiac can be

2 Weidner 1927

3 Sachs 1952, 72, n. 54

4 Weidner 1967

found in other texts (*Dodekatemoria*, lists of medical materials, cultic calendars), the combination of all of these into one table would have required a substantial amount of reading, essentializing, and writing. The rigid structure of the incised table also needed to be laid out beforehand in order to set the scene for the insertion of content.

Closely tied with the scholarly context is placing the micro-zodiac material in its textual context, identifying key passages borrowed from other texts and borrowed content across genres of the knowledge. This process is made difficult by the highly schematic nature of the text. The identification of a particular link with a text in one place, may appear numerous times elsewhere in the micro-zodiac essentially diluting the connection in the first instance. A good example of this is in the Material Row, where often particular materials can be traced to related texts and the analogical associations found there, but the material also shows up in other places within the micro-zodiac where those same analogical associations no longer apply.

The second goal of the dissertation is to present newly edited and to re-edit cuneiform texts which preserve more of the micro-zodiac series than was available before. These texts form the basis of this study, however they will hopefully also serve as data for future work on this text and other related material.

Finally, this dissertation seeks to understand the role of format and layout in the presentation and organization of knowledge. The combination of the various rows of content into one table is novel in the scholarship of this period, but has parallels in the astrological handbooks of the time. The tabular formatting which governs the structure of the text is the most

extensive formal layout of texts, but scribes of this period are experimenting with the physical organization of knowledge in other texts. The use of the zodiac to organize the entire structure of the twelve table series finds parallels in other texts where the zodiac governs a section or excerpt of a larger piece of work. Because the text incorporates all of these novel developments (content, format, and paradigm) in celestial divination and scholarly texts of the Late Babylonian period it is an ideal example of how the conception of astrology and knowledge organization was changing during this period.

1.6 Structure of the Dissertation

This dissertation is split into four main Chapters outlined below.

In Chapter 2 I describe the historical and scholarly context in which the micro-zodiac tablets were written. The scribes and scholars who worked on the micro-zodiac texts were members of the elite temple families of southern Babylonia during the Seleucid period (330-125 BCE). They had access to temple libraries as well as private archives within their houses, both of which preserved copies of texts from the traditional Mesopotamian genres of knowledge. At the same time they were active members of the community, interacting with their Greek rulers and the other residents of the cities. Along with the biographies of the four scribes that we can be certain worked on micro-zodiac texts, this chapter also deals with the change in cult practice and scholarship during the Late Babylonian period.

From the context of the tablets we transition into editions of all the known micro-zodiac texts in Chapter 3. This includes both those edited by Weidner in his seminal study,[5] as well as

5 Weidner 1967

previously unpublished texts in the British Museum. The chapter begins with a description of the series and a detailed catalog of the texts. Two of the rows, A and B, are investigated in detail because their content is standardized throughout the whole text. Each of the micro-zodiac tablets is presented in transliteration, translation, critical apparatus, and commentary.

In Chapter 4 I collect together a wide variety of closely related source material and look at the general themes and developments in astrology and scholarship during the Late Babylonian period. This builds on some of the themes discussed in Chapter 2. There is an interesting development in the presentation of divinatory, and in many cases specifically astrological, knowledge in the Late Babylonian period. New texts are written that compile or combine a variety of other textual material, through processes of summarization and essentialization. Summarization is the process of collecting relevant sources on a particular topic, BM 47494 for instance collects omens generally concerned with business. Essentialization is the transformation of sources into a paradigmatic structure that has a defined goal, like the micro-zodiac texts.

Finally, in Chapter 5 I approach the use of tabular formatting from a theoretical perspective incorporating its history in ancient Mesopotamian scholarship. The micro-zodiac tablets, unlike any other text from the period, are rigidly structured with a visual organizational scheme made up of columns and rows, indicated by incised lines, that organizes the diverse contents under a modification of the zodiacal paradigm. The phenomenon of tabular formatting and the process of transmission between textual formats helps to understand the under-

lying schematic nature of the micro-zodiac texts. Complementary to this analysis of format and layout, is an investigation into how visual and aural/oral senses used in reading texts are affected by tabular formats. The micro-zodiac texts while not an entirely new method of textual presentation, do force certain reading and cognitive practices on the reader unlike much of the earlier divinatory material since much of the syntax of the traditional analogical reasoning is taken up by non-linguistic physical markers on the text, i.e. the columns and rows.

Chapter 6 serves to conclude the dissertation and offer general points about the implications of the work to follow as well as areas of future work.

2 The Historical and Scholarly Context of the Micro-zodiac Texts

2.1 Introduction

In this chapter I will situate the micro-zodiac texts in their political, religious, and scholarly context during the latter half of the Late Babylonian period. This period covers the end of Achaemenid control over Mesopotamia (538-330 BCE), Alexander the Great's entrance into Babylon (330 BCE), the transition into the Seleucid empire (330-125 BCE), and finally Parthian rule over Mesopotamia (125 BCE - 225 CE). Changes in political structure, temple organization, and scholarly disciplines had begun much earlier during the Neo-Babylonian empire (625-539) BCE), and by the Seleucid period the cultural landscape had shifted considerably, albeit gradually. Scribes were integral members of the temple elite, employed to carry out astronomical and cultic responsibilities. The temples had grown in power and independence, functioning in many ways as a parallel economic and bureaucratic organization alongside the Greek rulers and their officials. While all of this was happening, developments in the celestial sciences, astronomy and astrology, produced new texts, including the micro-zodiac, which built upon traditional genres of Mesopotamian knowledge.

First, I will give a brief overview of the historical and political context of the Hellenistic period. The loss of native rule after the fall of the Neo-Babylonian empire changed the political scene in Babylonia. As a result, the relationship between foreign rulers, their proxies, and the native population is difficult to tease out of the textual record.[6] Evidence exists, however,

6 This is primarily because the native, i.e. Mesopotamian, documentation is almost solely concerned with the affairs of native Mesopotamians: legal texts, sale documents, and other administrative records. The textual

of Achaemenid and Seleucid kings showing an interest in Mesopotamian customs and even interacting with cuneiform culture with the composition of royal texts in traditional styles.[7] At the same time, the native temples served as base for the elite native families that had existed for generations in Mesopotamia.[8] Utilizing extensive economic power and religious authority, the temples were able to serve as a parallel system of government for the native populations in Babylonia. In many ways the temples functioned as the home of Mesopotamian scholarly and religious culture as foreign powers came and went.

It was in this context that the micro-zodiac tables presented a diverse range of content, reflecting both scribal practice and traditions as well as the scholarly landscape of Hellenistic Babylonia. The choices made by the scribes in excerpting certain sections of text and placing them in structural relationships within the larger table reveal the education of scribes steeped in traditional genres of Mesopotamian knowledge. For example in the Row B material from the micro-zodiac texts, a particular cultic ritual and various gods and their epithets are placed in relation to the signs of the zodiac. This small section of text does not accurately reflect the picture gained from the temple ritual texts preserved from the same time period.[9] In the Material Row, the inclusion of place and temple names would suggest an interaction with the ac-

narrative from the Greek side is lost due to the perishable nature of the medium on which they were probably recorded. The one cross-over are historical sections of the astronomical diaries which often record small political notes in the entries and the chronicles and the closely related diverse chronicle texts (Waerzeggers 2012).

7 Beaulieu 2014

8 Clancier 2011

9 The connection between the ritual in this row of the micro-zodiac and the wider evidence for the same ritual is explored in section 3.5.13.

tive cultic landscape of Babylonia, but these references, more often than not, derive from older texts and the temples are either hard to identify or no longer functioning. Despite the incongruences between the micro-zodiac and contemporary practice, the layout and method of composition are part of the developments in astrology happening during this period. In addition, despite the inclusion of extensive content from traditional celestial divination texts which dealt with national issues, the micro-zodiac seems to be primarily concerned with more personal matters, such as dietary restrictions and favorable or unfavorable actions.

The scribes who wrote the micro-zodiac texts were members of well-established families who had a long history as members of the temple elite. They held ritual posts within the priestly classes in return for performing cultic duties and receiving regular temple income in the form of prebendary salaries.[10] Their scholarly output was varied and extensive, covering mathematical astronomy, zodiacal astrology, as well as texts specific to their temple office.[11] At the same time they were active in the community, buying and selling land, and marrying members of the other scribal families.

2.2 Historical Context

Of the two micro-zodiac texts which preserve colophons neither can be dated with absolute certainty. However, judging by the names of the scribes, their patronymics and the one

10 Robson collects the economic activity and prebendary holdings of Anu-bēlsunu, one of the authors of a micro-zodiac text (Robson 2008, 254–255).

11 The scribes that we know were involved in writing micro-zodiac texts held the titles *kalû*, *āšipu,* and *ṭupšar enūma anu enlil*. The *kalû* is often translated as "lamentation priest", the *āšipu* as "incantation priest", and the *ṭupšar enūma anu enlil* is more complex and will be covered later in this chapter (McEwan 1981, 11–24). All of these titles concerned themselves with slightly different genres of knowledge, although scribes could hold either of the first two titles in combination with the last.

preserved regnal name, they were written towards the end of the third century BCE, roughly a century after the beginning of the Seleucid era. In this section I will briefly give an overview of Seleucid history and then proceed in more detail into the social interactions between Greeks and non-Greeks during the Seleucid period and the role of the temple institutions in the social and political context of Babylonia.

2.2.1 Seleucid Political History

The Seleucid dynasty begins with the return of Seleucus I to Babylon in 311 BCE. However, its formation began earlier with the death of Alexander in 323 BCE. Alexander's empire was divided upon his death among his generals, because his unborn son and regent, were too weak to rule effectively. In fact it was the troops stationed in Babylon who were summoned to make a decision on the tricky issue of succession.[12] The generals initially only served as satraps under the ruler Perdiccas and Phillip III, the co-regent for Alexander's unborn son. Infighting amongst the satraps and Perdiccas increased and eventually the general Seleucus rebelled.

The conflict between the claimants for the throne did not directly involve Babylonian citizens in the fighting, but it had a detrimental effect on the economy of southern Mesopotamia. Some information on the effect the conflict had on the local population can be gleaned from the records of commodity prices from the Astronomical Diaries.[13] Barley prices rose gradually near the end of the Achaemenid empire as higher taxes were imposed on Baby-

12 Errington 1970, 50

13 van der Spek 2000, 300–301; Slotsky 1997, 51

lonia.[14] With the arrival of Alexander, prices rose further and stayed high during his reign and subsequent death, perhaps due to the influx of people into Babylon and the internal conflict directly following his death.[15] Unfortunately, records for the period of conflict between the successors is lacking, but recorded prices are again very high during the conflict between Antigonus and Seleucus over control of Babylon.[16]

With the death of Perdiccas in 320 BCE, the generals convened in Triparadisus in Lebanon to appoint a new successor. At this point the kingdom was further divided and the generals were each assigned their own dominions nominally under the rule of Antipater as the new successor to Alexander. Seleucus at this point was put in charge of Babylonia, which he lost in short order to Antigonus in 315 BCE. Interestingly, throughout this period cuneiform documents were dated according to the reign of Phillip III. This dating scheme continued even after Phillip's death when an obvious ruler was not apparent, and most likely had to do with a desire on the part of the scribes to maintain a stable scheme for the years.[17] During the reign of Antigonus the dating formula changes once again to reflect his control of Babylon, and tablets are dated according to years under "Antigonus strategos."

Seleucus returned to Babylon in 311 BCE. The first evidence of his return in the cuneiform record is once again a change in dating formula: tablets return to using Alexander IV as

14 Hackl and Pirngruber 2014, 121

15 van Leeuwen, van der Spek, and van Zanden 2014, 7

16 van der Spek 2000, 301–302

17 Boiy 2004, 122

the regent for the year. The chronology is especially confusing at this point and both the classical authors and cuneiform sources are necessary to reconstructed a timeline.[18] In any case, it seems as if hostilities were mostly concluded between Seleucus and Antigonus over Babylon by 309 BCE with the former as the victor. Seleucus took the royal title at some point in 305/304 BCE when cuneiform documents start using his name in the regnal year. However, they backdate the year in this formula to 311 BCE when he retook Babylon from Antigonus.[19]

This brief historical review shows the complexity of evidence in the political control over Babylonia at the time in contrast with the continuity evinced by the cuneiform textual record. While there were periods of difficulty for the local populace, in particular during Perdiccas' control of the Babylonian hinterlands, and the final conflict between Antigonus and Seleucus, this was a relatively short time period which allowed for the elite local families to maintain control of their wealth and networks of power.

The governance of the cities, during the Seleucid period, was divided between Greek officials with positions in the imperial government, and native Babylonians who held local titles usually associated with the temple institutions. In Babylon the most prominent temple was the Esagil, the home of the god Bēl/Marduk. The reconstructed cuneiform archives from the temple have provided us with the majority of evidence of this period in the form of administrative documents.[20] The head of the temple, the *šatammu*, was the most senior administra-

18 Boiy 2004, 133

19 Boiy 2004, 139

20 Boiy 2004, 240

tive figure in Babylon, and as such held a great deal of power over the entire city. Together with a body made up of members from the elite families, the *kiništu*, the *šatammu* was the direct point of contact for foreign powers when dealing with the local populace or customs.[21]

In Uruk, the picture was slightly different, the city was not governed by the *šatammu* of the main temple, rather the chief official was the *rab ša rēš āli*.[22] This title was almost equivalent with the *šatammu* in Babylon; like his counterpart the *rab ša rēš āli* also governed with a council, *kiništu*, but in the case of Uruk this council was attached the Eanna temple. Both the chief official and their council were concerned primarily with temple matters, income from temple properties, and lawsuits and issues surrounding the prebends associated with temple positions.

2.2.2 Greek and Mesopotamian Interactions

There is a limited amount of information about the interaction between the Seleucid rulers of Mesopotamian and the native population. The existence of semi-governmental positions within the temple structure e.g., the *šatammu, kiništu,* and *rab ša rēš āli*, should suggest that the native population relied more on the traditional institutions than on the foreign rulers. At the same time, interactions between Greek citizenry and the native population is also elusive in the textual record. However, a few important pieces of evidence stand out. In at least two cases Seleucid kings took on traditional Mesopotamian regnal customs, in particular the participation in the *akītu*-festival and the authoring of a royal foundation inscription.

21 Boiy 2004, 194, 265

22 van der Spek 1987, 70

Additionally, the figure of Berossos and his writings suggests the interaction between scholars and foreign kings. Finally, the use of dual names and hybrid material culture suggest a more complicated picture of political and cultural identity in Hellenistic Babylonia.

The kings of the Seleucid dynasty exhibited renewed interest in the cultural and religious landscape of Babylonia. A hundred years after the beginning of the Seleucid dynasty, the king Antiochus III participated in the *akītu* festival during a visit to Babylon.[23] The account is quite fragmentary, but a few details are preserved in an astronomical diary from 107 S.E. (204 BCE).[24] This is, according to Boiy, the first mention of a Seleucid king attending this symbolically laden festival.[25] Another example of royal interaction with native Mesopotamian culture is the the Antiochus cylinder from Borsippa.[26] Antiochus I had a cuneiform cylinder commissioned to record his rebuilding of the Ezida and Esagil temples in Borsippa and Babylon respectively.[27] There are interesting scribal choices in the writing of the text, as well as the cultural background of the idea of a foundation cylinder. For instance, this text preserves, in cuneiform, the equation of the Babylonian god Nabû and the Greek god Apollo, also attested elsewhere in the Aramaic-speaking world.[28] In addition, the text follows a rigid Mesopotamian formula for ex-

23 See Pongratz-Leisten 1994 for an extensive study of the festival in Assur, Uruk, and Babylon.

24 Hunger and Sachs 1989, 200–205

25 Boiy 2004, 155 Linssen suggests that another astronomical diary might mention the return of Antiochus II from the *akītu* meaning that he might have celebrated the festival as well (Linssen 2004, 85).

26 Beaulieu 2014

27 Sherwin-White 1991

28 Beaulieu 2014, 19 n. 20

alting the building projects of a ruler. Both the participation in the *akītu*-festival by Antiochus III and the cylinder commissioned by Antiochus I serve to not only exemplify the continuity of Mesopotamian culture but also indicates the level to which Seleucid kings were participating in the expected roles of standard Mesopotamian kingship.

Outside of the actions of Greek kings a few examples native Babylonians interacting with Greek culture and the Hellenistic rulers provide evidence of a blurring of cultural lines. A good, albeit unique, example of this phenomenon is the character of Berossos, who figures greatly in the later classical image of Babylonia. Our only record of the Babylonian priest comes from the later transmission of his writings through the classical tradition.[29] Despite the issues with the historicity of his personage, his writings certainly preserve unique aspects of Babylonian knowledge that could have only come from someone trained in Mesopotamian scribal arts. His *Babyloniaca*, fits the model of a Greek ethnographical history, a study of a foreign land for non-native rulers common in the Hellenistic world. He is said to have dedicated it, perhaps as an act of patronage, to the king Alexander, which is probably a mistake for Antiochus.[30] The fact that he was supposed to be of the priestly class as well gives a tantalizing hint for the continued trend of royal and scholarly interaction into the Hellenistic period.

Two final examples give evidence to the interactions between Greek and non-Greek residents of Babylonia. The practice of holding a Mesopotamian and Greek name is attested dur-

29 See Haubold et al. 2013 for a collected overview of many aspects of Berossos and his work. In particular De Brucker's contribution is an excellent summary of what we know (De Breucker 2013).

30 De Breucker 2013, 17

ing the Hellenistic period, pointing to the existence of a hybrid identity. This was not necessarily a new practice,[31] but it is better attested during the Hellenistic period.[32] Material culture, where present, can shed additional light on the identity of residents of Babylonia. Stephanie Langin-Hooper conducted an in-depth study of the terracotta figures excavated in Seleucia-on-the-Tigris.[33] She concluded that the forms of figurines found at the site do not fit neatly into either Greek or Mesopotamia standards. She suggests that rather they were the product of a complex social network that had developed between transplanted Greek citizenry and native Babylonians.

On a higher level we have good evidence of the interaction between Greek and non-Greek scholars. While this evidence cannot be necessarily tied to individuals or a particulary point in time, it still suggests that some sort of cultural exchange was taking place in Late Babylonian scholarly circles. In both astrology and astronomy, scholars have been able to identify elements of Babylonian learning in foreign cultures, but especially Greek celestial science.[34] It is important to note however that the transmission of astral knowledge, whether related to mathematical or divinatory knowledge did not necessitate the adoption of any theoretical underpinnings of the adopted system. Rochberg notes that the fundamental differ-

31 Sherwin-White 1983

32 Boiy 2005

33 Langin-Hooper 2007

34 A good summary can be found in Pingree 1998.

ences in the conception of how celestial divination functioned was one reason why the Babylonian and Greek astrology differed in their overall character.[35]

The interaction between Greeks and non-Greeks in Hellenistic Babylonia is, as with most periods, concentrated on the royal and elite spheres. Concrete evidence places the Seleucid kings at Babylonian religious festivals, and show them commissioning royal inscriptions in a local style. The evidence for the rest of the population is more ephemeral but suggests that people were interacting on multiple levels, from their material cultures to erudite scholarly learning.

2.2.3 Late Babylonian Temple Institutions

The temples of the Late Babylonian cities were powerful institutions that controlled large sections of the economical and social livelihoods of the citizenry. In Babylon specifically the Esagil dominated all aspects of economic life in the city.[36] The growing power of temples and their role in serving as the seat of scholarship had started during the Neo-Babylonian period. The major shift of scholars working in the royal court to being employed in the temples seems to have begun during the Neo-Babylonian and Achaemenid periods when we have very little evidence for scribes working in the court.[37] In fact, there is evidence that scholars were at that point already residing, or at least working, in a location called the *bīt mummu*, translated as

35 Rochberg-Halton 1988a, 61–62

36 Boiy 2004, 241. Albeit, the majority of our evidence comes from the archives of the Esagil. If we had records that were written on perishable materials the picture might be slightly different.

37 Rochberg 2004a, 230–231

"temple academy" by Beaulieu.[38] It is tempting to see the changes happening in scholarship of this period, for example, the development of mathematical astronomy and zodiacal astrology, as a product of the new position of scholars outside of the palace. However, there is very little concrete evidence that this is the case.[39]

The scribes and other staff of the temples were supported by a complex system of official temple offices that were guaranteed a certain income throughout the year in exchange for services and cultic duties performed in the temple. This was the "prebend" system which seems have been fully formed already in the Neo-Babylonian period.[40] The prebendary positions were divisible and transferable providing, in the later periods, a complex market of speculation, with individuals holding multiple prebendary shares.[41] Through a study of the price of prebendary shares in the Neo-Babylonian and Hellenistic periods Pirngruber and Waerzeggers were able to show that the value was relatively stable over time, attesting to the maturity of this economic model of temple activity.[42] Some of the scholars who owned and were supported by these prebendary offices were also authors of important astronomical and astrological texts. We know that at least one member of the Sîn-lēqi-unninni family owned shares in the *girseqûtu* office.[43]

38 Beaulieu 1989, 7–8

39 Rochberg 2004a, 117–118

40 Corò 2005

41 Corò-Capitanio 2005

42 Pirngruber and Waerzeggers 2011

43 Pearce and Doty 2000, 339

2.3 Archaeological Excavations in Babylon and Uruk

Babylon and Uruk are the two best-understood cities in the Hellenistic period in Mesopotamia, thanks to abundant records and archaeological excavations. Cuneiform records preserve scanty evidence from Ur, Borsippa, Kish, Marad, Cutha, and Larsa. The latter two had some form of governance attested similar to the Babylonian *šatammu* and *kiništu*, the head of the temple, and a governing body of elite families respectively.[44] But Babylon and Uruk were certainly the most important cities from a political, religious, and economic perspective. However, their modern importance is also in part due to the abundance of textual evidence which is preserved from the sites.

2.3.1 Babylon

The city of Babylon had for more than a century served as the *de facto* capital for the Achaemenid rulers in Mesopotamia, and before that it had been the seat of the Neo-Babylonian empire. Its urban landscape was very much the same in the Hellenistic period.[45] The walls, mentioned by Herodotus, were still an important landmark on the otherwise flat plane of southern Mesopotamia.[46] However, Herodotus is only one of many sources for the reconstruction of the city of Babylon.[47] In addition to his *Histories* other classical authors described Babylon, most notably Ctesias in his *Persica*.

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44 van der Spek 1987, 74

45 Boiy 2004, 97

46 Herodotus, Book I:179-181.

47 And certainly the account by Herodotus has its issues, these were explored by Rollinger in his commentary on Herodotus' sections on Babylon (Rollinger 1993).

In addition to Classical accounts, there is a substantial amount of evidence from archaeological excavations during the late nineteenth and early twentieth centuries. The site of Babylon was explored in the first half of the 19th century by British explorers and archaeologists. Prompted by the entry of large numbers of tablets on the market, the British Museum dispatched Hormuzd Rassam who conducted excavations from 1878-1892 at the site of Babylon and discovered more tablets.[48] However, most of our understanding of the site is thanks to work carried out by Robert Koldewey with the support of the Deutsche Orient-Gesellschaft during the late-nineteenth and early twentieth centuries.[49] Since these excavations a few teams, both Iraqi and foreign, have spent time at the site. Koldewey's primary aim was to uncover the Neo-Babylonian levels of the site, and as a result much of the later material, both Achaemenid and Hellenstic, was not recorded in the same level of detail.[50] Very few of the published cuneiform tablets from the Hellenistic from Babylon come from secure archaeological contexts, due to the fact that the vast majority of the tablets were excavated as some point in the late nineteenth and early twentieth centuries. In the case of the micro-zodiac tablets which made their way into the British Museum, the records preserving their acquisition and accession allow for attribution to a rough general location, confirming that they probably came from the city of Babylon itself rather than surrounding cities.[51]

48 Reade 2000, 50

49 Koldewey 1914

50 Boiy 2004, 8

51 Reade 1986

Most of the excavated Neo-Babylonian buildings were covered by extensive Hellenistic and even Parthian remains, attesting to the continuation of habitation well beyond the end of the Neo-Babylonian empire. There were substantial renovations and a few new buildings erected during the Seleucid period. At some point a Greek theater was built in the northern part of the city.[52] The theater was one aspect of the changing nature of the city during the Hellenistic period; it seems to have been a focal point for the Greek residents of Babylon, there is evidence of an assembly gathering in the theater and the reading out of letters from the king. Van der Spek has argued that royal messages were read out to the Greek residents of the city, the *politai*, in the theater, whereas the royal messages reached the non-Greek populace through the office of the *šatammu*, or the *kiništu*.[53]

2.3.2 Uruk

In the Hellenistic period Uruk remained a seat of cultic importance with the extensive complex of the Rēš temple dedicated to the god Anu. In addition to the temple governance, there was a system of parallel royal officials. Uruk had two officials, a *šaknu*, or governor, and a *paqdu*, who oversaw the temples.[54] These two offices, along with a few offices with Greek titles, served as the royal representation in Hellenistic Uruk. Outside of the system of governance, very little seems to have changed in the city from the Achaemenid period. Much of the

52 Wetzel, Schmidt, and Mallwitz 1957, 3–21

53 van der Spek 2001

54 van der Spek 1987, 71–72

traditional cuneiform culture survived along with the support of the local temples and cults.[55] As we will see later in this chapter, the elite temple families in Uruk had a large part to play in the continuity of cultural norms. They not only controlled many of the offices within the temple structure, but some were also elevated to roles in the city government.

Excavations have been carried out, on and off, in Uruk since the early twentieth century by German archaeologists.[56] The focus of excavation has been on the temple complexes of the *bīt Rēš* and Irigal and later temples. Very little is known about the residential or administrative buildings at the site. A few residential buildings were excavated in area Ue XVIII which preserved Seleucid and Parthian occupation.[57] In one particular house, libraries from the Achaemenid and Seleucid period were found.[58]

The tablets from this from these libraries are particularly informative about scholarly material in this period. They include important texts from a wide range of Mesopotamian learning, including astronomy and astrology.[59] A smaller library was discovered in the excavation of the temple complex.[60] The tablets from both areas share similar subject matter and authors.

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55 van der Spek 1987, 72

56 The results have been systematically published in the series *Uruk Vorläufiger Bericht*, with final reports appearing in *Ausgrabungen in Uruk-Warka Endberichte*.

57 Finkbeiner 1991, 234

58 These are Uruk 9 and 10 in (Pedersén 1998).

59 The texts from this excavation are published in the *Spätbabylonische Texte aus Uruk* series.

60 Mayer and van Dijk 1980

It is most likely that a large quantity of tablets which did not originate from excavations came from the same library in the Rēš temple, including those published in TCL 6.[61]

2.4 Cultic Practice

Babylon and Uruk were cities very much defined by their temple communities. The main temples occupied central locations in both cities and had a large stake in the economic landscape of the countryside through extensive land holdings and business interests. The practice of cultic observance had a large role to play in the day to day functioning of the city.

The changing landscape of cultic practices in Babylon and Uruk is hard to pin down. The scholarly material, typified by the topographical texts[62], although copied during this period reflect earlier attempts to define the cosmological and theological landscape rather than enumerate, for example, the active temples in Babylon. At the same time the administrative records are biased in their own way; they concern the daily affairs of the institution in which they are found and are not intended to be a comprehensive catalog of places in the vicinity.

The micro-zodiac texts include place names throughout the text, but most commonly in the Material Row. Despite the inclusion of place names in this row, there are very few toponyms which appear both in the topographical texts and are preserved in the content of the micro-zodiac texts. Assuming that the topographical texts do not reflect a current reality, we might expect the micro-zodiac texts to at least share content with the topographic texts which also cataloged and celebrated the religious landscape of Babylonia. For instance, the Material

61 Pedersén 1998, 210; Clancier 2009, 42–43

62 George 1992

Row preserves seventeen names of temples to distinct gods.[63] These names are given in their "popular form" rather than the ceremonial name.[64] We might expect this list of popular temple names to be easily recognizable in other texts of the period. However, when compared to texts like Tintir IV[65], which lists the temples in Babylon specifically, many of the temples from the micro-zodiac texts do not appear at all (seven out of seventeen are missing) This same list of temples in the Material Row can also be compared with the temples attested in the Eanna records from Neo-Babylonian Uruk.[66] This is obviously an earlier data-set but reflects, unlike the Tintir material above, the realities of cultic practice in Uruk during the Neo-Babylonian period. A similar pattern emerges, where seven out of the seventeen popular temple names are not found in the texts. This suggests that the place names, and specifically temple names, contained in the Material Row were not taken directly from a known literary tradition or from ongoing cultic practice of the period. Certainly places like the Eanna temple and cities such as Ešnunna and Eridu were no longer in use or inhabited and must therefore be antiquarian references taken from previous textual traditions.

63 I am choosing to focus only on the temples with the name in the following formula: E_2 DN. This was a common form of the temple name found in lexical texts and administrative documents. The Khorsabad Temple List (text 3 in George 1993) is a good example of this type of lexical list. The three columns of this tablet give the ceremonial name, popular name, and finally the location.

64 For more on the distinction between the two, see George's discussion: he notes that the popular names, *bīt* DN (house of *a god*), were used in "secular documents" as well as rituals and religious texts of a "practical nature." (George 1992, 73).

65 George 1992, 57–62

66 Beaulieu 2003

A number of important texts record the rituals and ceremonies conducted within the temples in Uruk and Babylon. Marc Linssen, in his comprehensive study of these texts, was able to show that the ceremonies and rituals preserved in the ritual texts do describe actual cultic activities during the Hellenistic period in Uruk and Babylon.[67] He compared the activities present in the ritual texts with evidence from the Astronomical Diaries and administrative and legal texts. He found that the rituals and ceremonies were well attested outside of the ritual text corpus suggesting that they described actual activities within the temples of this period.

However, of the many cult practices attested in the ritual texts only one appears in the micro-zodiac texts, the *pīt bābi* ceremony.[68] Closely tied to the *dīk bīti,*[69] the *pīt bābi* was a cultic ceremony in the temple taking place just before dawn. Not much is known about the actual actions taking place during the ceremony, but it presumably had something to do with letting priests and staff of the temple inside the compound.[70] The data are far from complete but the majority of preserved days for the *pīt bābi*-ceremony are dated to roughly the first half

67 Linssen 2004

68 A more in depth analysis of this ceremony and its mention in the micro-zodiac texts can be found in Chapter 3.

69 The *dīk bīti* ceremony, the "awakening of the temple", was a daily observance in the temple (Linssen 2004, 27–36). The tablet TCL 6 48, probably from the Rēš temple in Uruk, lists a schedule of *dīk bīti* observances throughout the months. Interestingly, many of the *dīk bīti* observances and their associated gods and recitations occur on regular days in each month. For example, on the first day of the month, the recitation is "abzu pe-e_2-la_2-am_3" for the god Anu (Linssen 2004, 32).

70 Linssen 2004, 36–39

of the month in which they occur.[71] References to the *pīt bābi*-ceremony are found in Row B, preserved only for the minor signs Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, and Scorpio.[72]

However, any congruence between references to the *pīt bābi* happening on distinct dates and its mention in the minor-sign sections of the micro-zodiac runs into two major conceptual problems. The first is that the subdivision of the Major sign into twelve minor signs does not cleanly divide the ideal month into whole days; each minor sign therefore represents two and a half days. Secondly, and perhaps more difficult to get around, is the fact the minor signs rotate through the micro-zodiac; each minor sign occurring in each of the twelve columns of the table; meaning that the *pīt bābi* references in the micro-zodiac could not have been linked to the regular performance of a ceremony on a fixed date, except if that particular ceremony was a unique occurrence in the whole ritual calendar. Essentially, the *pīt bābi*-ceremonies mentioned in the micro-zodiac were either fundamentally different from the ones mentioned elsewhere in the ritual corpus of Hellenistic Babylonia which occurred on regular days, or each mention was its own unique ceremony occurring only during the period of time designated by the Major and minor sign under which it was recorded.

2.5 Astrology

71 Except for one reference to the 30th, the latest date is the 17th of the month.

72 Interestingly, Text 11 (K 11151+) on occasion omits the *pīt bābi*-ceremony from cells where it appears on other manuscripts. In one case, a cell omits the ceremony while elsewhere on the text under the same minor sign the ceremony is mentioned. This suggests that these omissions are a scribal mistake rather than a commentary on the occasion of the *pīt bābi*-ceremony.

The science of astrology in Late Babylonian scholarship built upon a substantial discipline which already existed in a mature form in the Neo-Assyrian empire. The scribes who were active in this field sometimes took the title *ṭupšar Enūma Anu Enlil* in addition to any other professional designation they carried. The celestial omen series *Enūma Anu Enlil* and its associated commentary series *Šumma Sîn ina Tāmartišu*, as well as other astronomical and astrological texts like Mul.Apin are well attested in the palace libraries of the Neo-Assyrian court, and excerpts show up in the copious correspondence between the king and his advisors. The divinatory concerns of these texts were with the fate of the king, the royal family, the land of Assyria, its people,[73] and neighboring areas and rulers.

While these texts are also copied during the Hellenistic period, there is a marked shift in astrological scholarship during the Late Babylonian period, beginning with the invention of the zodiac at the end of the 5th c. BCE.[74] Celestial inquiry becomes a paradigmatic science no longer governed by observational methods, in that the locations of "ominous" bodies are not given in terms of proximity to other bodies, but rather within fixed zodiacal signs of 30° each. This departure from "observability" is a radical shift for divination, as it means that the omens, or protases, no longer rely on a sense of the observable (if not actually observed), but instead were derived from calculation and thus became a regularized phenomenon.

The divorcing of presumed observable event from a prediction allowed for greater analogy and symmetry to govern the logical relationships between omens in astrological knowl-

73 People here is meant as a collective, i.e. the population of Assyria, not discreet individuals.

74 Britton 2010, 638–649

edge. Koch, using the micro-zodiac texts as an example, notes that the use of the zodiac within the astrology of this period perhaps "stimulated the effort to correlate things and phenomena ...".[75] At the same time as the format and structure of texts are changing, the topics with which they are concerned is also exhibit a shift. The earlier focus on the king and the state gives way to more personal matters.[76]

Celestial divination of the Late Babylonian period often includes references to the king and state, but these are quotations from the texts which were copied from earlier manuscripts and traditions. New forms of astrology like horoscopes begin during this period; the first horoscope text is dated to 410 BCE.[77] In addition, astrological tablets now often include multiple small excerpts or mini-texts which preserve a particular paradigm or section of text. The micro-zodiac texts are a perfect example of this phenomenon, but there are other texts which are also made up of multiple textual sources brought together for a particular astrological purpose. This practice reflects the diverse interests of a form of astrology centered on the individual rather than the king and state.

Texts like, BM 56605[78] which include multiple forms of astral medicine and the astrological "compendium" texts edited by John Steele illustrate this practice particularly well.[79] BM

75 Koch-Westenholz 1995, 164

76 Rochberg 2004a, 101

77 Rochberg 1998, 3

78 Most recently commented on by John Wee (Wee 2015). This text will re-appear in Chapters 4 and 5.

79 Steele reconstructs the text from three different manuscripts, A: BM 36988, B: BM 36303+, C: BM 36628+ (Steele 2015a).

47494, edited by Hunger, has five different sections of text, the first of which equates constellations with cities.[80] Later sections of the text use triplicities of signs to associate the zodiac with other predicative qualities. An additional text, TCL 6 13, includes multiple astrological sections and also a circular diagram.[81] What is striking in all these cases, is the way in which the various texts could be sectioned off from each other with incised lines on the tablet demarcating areas of the tablet outside the traditional column and paragraph division well known from the cuneiform tradition. This type of formatting gives the texts a sense of a handbook of collected astrological resources rather than a continuous text.

The micro-zodiac texts even take this practice of "handbooks" one step further on two of the tablets. Texts 2 (VAT 7851) and 7 (VAT 7847+) include outside of the micro-zodiac table, itself a compendium of textual information, a circular horoscopic diagram and a list of lexical glosses and excerpts respectively. It is clear that the micro-zodiac texts are part of the changing tradition of astrology of the period with a refocusing of content on the individual, through the Row C advice material, as well as the tradition of combining different forms of knowledge under a paradigmatic structure.

2.6 Scribes and Scholars

The copious textual records from Hellenistic Babylonia attest to the varied activities of scribal families both in academic and economic pursuits. Administrative records give evidence of their roles within the temples and economic transactions outside of the temple. Le-

80 Hunger 2004

81 Rochberg-Halton 1987a

gal records attest to property exchange and inheritance, while marriage records further intertwine the elite families. All of this data, coupled with the colophons from scholarly tablets, has allowed a number of scholars to construct detailed models of the families and their interactions with each other.

However, there is very little native evidence for the duties and scholarly pursuits of the scholars who worked on the micro-zodiac texts. One of the scribes who copied the micro-zodiac texts held the title *ṭupšar enūma anu enlil* (literally, "scribe of (the omen series) *Enūma Anu Enlil*). This term is complicated, but Erica Reiner offered the translation, "expert in celestial matters"[82], which describes the breadth of their scholarly pursuits, from mathematical astronomy to astrology. The term however did differ in its usage between Babylon and Uruk, and Beaulieu suggests that the scribes in Babylon who bear the title worked primarily on mathematical astronomy, whereas in Uruk where scribes often bore the title together with another designation worked across disciplines.[83]

One particular text enumerates the responsibilities of this office in Babylon: CT 49 144 is a legal text documenting the transfer of the salary of the office from one scribe to another.[84] It is useful because as part of the transfer it outlines the duties of an astronomer during the Parthian period: recording observations to make diaries, computing tables, and finally assembling almanacs. These were all part of the astronomical practice and do not explicitly include

82 Reiner 1995, 63

83 Beaulieu 2006, 18

84 Rochberg 2000, 370

astrological knowledge. This division of labor should not be read as a definition of an astronomer of this period, there are numerous texts which attest to the conception of astronomy and astrology as being part of the same scholarly expertise.

By assembling all of the textual data surrounding families of scribes, modern scholars have shown that the scribal families of Late Babylonian Uruk were heavily involved in the business of the city and closely connected through networks of inter-marriage and shared economic activities.[85] In the following section I will investigate in more detail the work of the two scribal families that we know were involved with the micro-zodiac texts, the Sîn-lēqi-unninni and Ekur-zākir families. In particular the Sîn-lēqi-unninni family and one its more famous members, Anu-bēlšunu, have received a great deal of scholarly attention.[86]

Most of the scribal families were associated in some way with the Rēš temple in Uruk. Often they held a titled post, whether it was *kalû*, or *āšipu*, and were related either by blood or through scholarly training to members of the temple staff or governance.[87] This created not just a broad network with multiple connections, but specifically increased the density or number of connections between these families and in some cases even individuals. Finally, the ev-

85 For the Šamaš-ēṭir family see Robson's article (Robson 2007). She makes the case for taking the entire output of a scribes work as indicative of the social network. A slightly different example is found in the study of the archive of Nanâ-iddin (Doty 1978). Despite the lack of scholarly texts in the archive, the business dealings reveal how interconnected the scribes were outside of their academic pursuits.

86 Beaulieu looked at the long history of the Sîn-lēqi-unninni family from Neo-Babylonian period into the Hellenistic period (Beaulieu 2000). Pearce and Doty wrote a survey of his scholarly output (Pearce and Doty 2000). Finally, Robson surveyed many of the families of this period in her work on the history of mathematics in Iraq (Robson 2008, 240–262).

87 Rochberg notes that the *ṭupšar Enūma Anu Enlil* were also either a *kalû* or *āšipu*, as one of these latter titles signified their role within the temple structure (Rochberg 1993, 42).

idence from the Nanâ-iddin family and other economic and administrative documents attest to the similar ways in which these scribal families earned their living.

Much of the work on scribal families, and persons in general, during this period is made difficult by the tradition of papponymy: a practice by which the grandson is named after grandfather.[88] For instance, in the Sîn-lēqi-unninni family tree there are two Anu-bēlšunu's, one of whom was the owner of a micro-zodiac tablet. Distinguishing between the two can be quite difficult even with extensive patronymics preserved in the colophons. Pearce and Doty were able to concretely identify the two individuals by comparing the progression of scribal education and the stages of production for a young scribe.[89]

The dense surveys of scribal families mentioned above have provided ample evidence for collaboration and education between the scribal families. The work of Ossendrijver in investigating the networks around Nidintu-Anu/Anu-bēlšunu of the Ekur-zākir family showed conclusively how closely related the various families were in their scholarly output.[90] Through his detailed analysis of the scholarly colophons and administrative documents he was able to place Nidintu-Anu with a group of highly accomplished scribes. In particular, he seems to have learned much of his advanced scribal learning from Anu-balāssu-iqbi of the Aḫûtu clan. The scribes involved with the micro-zodiac are very much part of this network collaborating with scholars in other families.

88 Doty 1978, 77 n. 21

89 Pearce and Doty 2000, 336

90 Ossendrijver 2011

2.6.1 Scribal Attribution

The colophons of this period often attribute the ownership of the tablet to one scribe and the writing of the tablet to another.[91] This is the case with both of the preserved colophons on the micro-zodiac texts. They use "*ṭuppi* PN" ("tablet of PN") to indicate ownership, and "ŠU PN_2" ("hand of PN_2") to indicate authorship.[92] This phenomenon was studied by Ossendrijver; he suggests that these two terms refer to "strictly consecutive, non-overlapping phases in the biography of a scholar."[93] He goes on to specify that the use of the "hand of PN_2" indicates completion of advanced education, while the "owner" designation indicates assumption of a temple office. The collaborative nature of the colophons, with the "owner" and "hand" designated separately illustrate the tight-knit nature of the scholarly activities of this period. When colophons are absent or broken it can be hard to attribute a text to a particular scribe. However, in some cases even a broken colophon can be used to place the text within a chronological range, by comparing the text with the known catalogs of other scribes and similar texts.

2.6.2 Sîn-lēqi-unninni

Text 7 (VAT 7847+) Colophon:[94]

91 Clancier 2014, 50–52

92 This terminology is slightly different from earlier periods. Looking at another group of colophons, those of the house of the *āšipu* in Assur during the Neo-Assyrian period, we find that the colophons use either "*ṭuppi* PN" or "ŠU PN" but never both (Hunger 1968 nos. 191-220). This suggests that scribal work during this period was at least portrayed in the textual record as the product of a single author rather than a collaboration between two scribes.

93 Ossendrijver 2011, 214–215

94 The first line is written a good deal above the rest of the colophon and seems to be centered horizontally on the tablet.

TA UGU ^{giš}DA SUMUM-*bar* GABA-*ri* UNUG^{ki} SAR-*ma* IGI.TAB
⌜*ṭup*⌝-*pi* ^{md}EN-*šu*$_2$-*nu* ⌜^{lu_2}⌝GALA ^{d}60 *ma-ru*$_3$ *ša*$_2$ ^{m}NIG$_2$.SUM.MU-^{d}60 *ma-ru*$_3$ ^{md}30-TI-ER$_2$
TIR.AN.NA^{ki} ŠU$^{!}$ ^{md}60-AD-GUR A-*šu*$_2$ ^{lu_2}UMBISAG U$_4$ ^{d}60 ⌜^{d}*en*⌝-[*lil*$_2$]
[(...) ^{m}]⌜*an*⌝-*ti-'i-ku-su* ⌜LUGAL⌝ MUD ^{d}60 ^{d}*en-lil*$_2$ *u* ^{d}IDIM *ina šur-qa* NU TUM$_3$-*šu*$_2$

Written and check from an old writing board, copy from Uruk.
Tablet of Anu-Belšunu, *kalû* priest of Anu, son of Nidintu-Anu, son of Sin-leqi-unnninni, The Tiranaean. Hand of Anu-aba-uter, his son, scribe of *Enūma-Anu-En*[*lil*]
[(...)] A]ntiochus, king. He who reveres Anu, Enlil and Ea shall not take it away through theft.

Anu-bēlšunu is perhaps the best known scribe of the Hellenistic period, thanks to a lengthy career well-documented in the cuneiform record.[95] He was most probably born in the year 63 Seleucid Era (248 BCE) and died some time after 126 Seleucid Era (185 BCE) when he is last attested on a text. We have tablets preserved from his time as an apprentice scribe, still learning the craft, all the way down to the end of his career when he was no longer an author, but an "owner" of tablets (including one of the micro-zodiac texts). His corpus has been studied extensively by a number of scholars partially because of Anu-bēlšunu's particular interest and skill in both astronomy and astrology.

A good example of his skill is a horoscope written by Anu-bēlšunu.[96] This document records the birth of Anu-bēlšunu himself. The gap of time between his date of birth and the supposed writing of the horoscope necessitates using either complex astronomical methods or the wealth of historical data to calculate the celestial positions for that point in time. The retroactive recording of horoscopes was common practice, shown by the existence of birth

95 See Table 1 at the end of this chapter for a catalog of texts either written by or owned by Anu-bēlšunu.

96 Beaulieu and Rochberg 1996

notes recording the date and time of birth for later interpretation, but in those cases presumably the gap in time was much smaller than in the case of Anu-bēlšunu's tablet. Here, the date given for his birth on the horoscope is in year 63 S.E. (248 BCE), whereas the bulk of his scholarly output occurred between years 118 and 124 S.E. (193-187 BCE).[97] If the horoscope was written during his most productive period he would have been in his late fifties and early sixties. The horoscope itself is also unusual by mentioning explicitly the name of the client (in this case Anu-bēlšunu) and also by offering predictions along with the astronomical data.

The rest of the textual corpus belonging to Anu-bēlšunu can be divided into scholarly and archival material.[98] Both types of texts are attested throughout his lifetime. The archival material presents a picture of an elite member of society dealing in property in and around Uruk. Many of his economic transactions involve property that he inherited, and in a few cases Anu-bēlšunu serves as the scribe recording the transaction. As mentioned earlier, a few other archival texts make reference to his prependary income. His family seems to have acquired the "neck cut", a right probably afforded to the position of *kalû*, lamentation priest, within the temple administration.[99] In a few other texts he serves as a witness to transactions, giving an indication of his place within the temple families of Hellenistic Uruk.

97 Beaulieu and Rochberg 1996, 93. Also, a unique text owned by Anu-bēlšunu dated to 121 S.E. (190 BCE) contains planetary data for the span of time covering Anu-bēlšunu's birth. John Steele has suggested that this text might have served as the inspiration and data for the crafting of Anu-bēlšunu's own birth horoscope (Steele 2000, 134).

98 Here I use archival as a designation for non-scholarly material that would have been part of a tablet archive. These texts are generally administrative, legal, or epistolary in nature. This designation between scholarly and archival is similar to Pedersén's library and archive dichotomy between archives and libraries (Pedersén 1998, 3).

99 Beaulieu 2000, 11

For the majority of his scribal career Anu-bēlšunu held the title of *kalû*. Early in his career his title is recorded as a *kalû ṣehru*, junior lamentation priest (e.g. TCL 6, 46). The progression from junior to senior priest is made evident through the change in his title within the colophons of the scholarly texts (e.g. Text 7, the colophon of which was presented above). Another clue to his elevation in rank comes from the terminology used to record the authorship of the texts. As mentioned above, the colophons of this period record both the scribe who wrote the text and the "owner" of the text. Anu-bēlšunu is mentioned using both types of terminology, suggesting progression in his scholarly career. Upon finishing his specialized training he uses the "hand of" terminology to note his status as scribe, and later when he has become a *kalû* of the Rēš temple he then becomes an "owner" of tablets.

His scholarly texts can be divided into those which belong to his training as a *kalû*, and the more astronomical and astrological tablets. Beaulieu has suggested that both the title *kalû* and *āšipu* were not a fixed set of learned texts. Rather, these terms signified an advanced stage of scribal education and familiarity with a wide range of topics, including in this period astronomy and astrology.[100] His astrological work focused primarily on late-astrological concepts, we have no copies of the canonical celestial omen series *Enūma Anu Enlil* written by or owned by him, although this might only be an artifact of preservation.

Anu-bēlšunu also wrote, during his early years, the "Esagil tablet". This text was commissioned, or owned by another Anu-bēlšunu of the Aḫûtu family. This text consists of a series of simple mathematical word problems regarding the size and dimensions of the Esagil in Baby-

100 Beaulieu 2000, 9

lon.[101] In addition, he wrote himself or supervised his son Anu-aba-ūter on seven tablets dealing with mathematical astronomy.[102]

Anu-bēlšunu's son Anu-aba-utēr often wrote tablets for his father but also collaborated with other scribes. In fact the bulk of the tablets from the Sîn-lēqi-unninni family were written by him.[103] The two scribes, father and son, worked together on one of the micro-zodiac tablets as well as a closely related Calender Text (*Kalendertexte*).[104] Some of his earliest scribal training was writing out astronomical tables for Šamaš-ēṭir of the Ekur-zākir family. In his own time he took on an apprentice, Anu-uballiṭ from the Ekur-zākir family. He may have been returning the favor for his earlier apprenticeship to Šamaš-eṭir, an older member of the Ekur-zākir family. In many ways he typified the breadth of the Late-Babylonian scribal training. He was as familiar with highly technical mathematical astronomy as with complex and enigmatic astrological material.[105] His activities ranged from calculating ephemerides for planets (e.g. TCL 6, 29), to ritual texts (e.g. TCL 6, 46), as well as of course astrological texts like the micro-zodiac.

2.6.2 Ekur-zākir

Text 2 (VAT 7851) Colophon:[106]

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101 George 1992, 109–119

102 For a detailed catalog of tablets from the Sîn-lēqi-unninni family, see Table 8.5 in Robson 2008, 245–251.

103 Robson 2008, 245–251

104 The micro-zodiac is edited as Text 7 (VAT 7847+) in Chapter 3. The Calender Text is VAT 7815 (Weidner 1967).

105 Rochberg 1993, 43

106 As with the previous colophon, the first line is written above the latter to lines. However, in this case the first

DIŠ 30 *ina* KI ^{mul}MAŠ.TAB.BA.GAL AN.GE$_6$ GAR-*ma* EN.NUN *ig-mur u* $^{tu_{15}}$MAR.TU
IM ^{md}60-ŠEŠ-MU ŠU ^{md}60-DU-A MUD ^{d}60
NU ^{i}TUM$_3$-*šu*$_2$ *a-ḫu-u* NU *i-mar*

If the moon is eclipsed in the place of Gemini, and it is concluded in the evening watch and there is a west wind.
Tablet of Anu-aḫu-iddin. Hand of Anu-mukīn-apli. Whoever reveres Anu should not remove it. An outsider should not see (it).

The owner of this tablet, Anu-aḫu-iddinu is a known member of the Ekur-zākir family. He was the son of Nidintu-Anu, a prominent member of the family, and he assumed the position of *āšipu* after his father's death.[107] His only attestation in colophons is as the "owner" of tablets. This probably is related to his assumption of the position of *āšipu*. Unfortunately the scribe of this particular text is otherwise unknown. The colophon does not preserve any familial relations for Anu-mukīn-apli that would help us place him within the wider social network. It can probably be assumed that he was a member of one of the prominent scribal families in Uruk at the time.

2.7 Conclusion

The exact date of composition for the micro-zodiac is unknown. One manuscript, Text 4 (W 22554, 7a), probably dates to the end of the 4th c. BCE, a period of upheaval during the transition from Achaemenid to Hellenistic rule. Another manuscript, Text 7 (VAT 7847+), is dated to the 2nd c. BCE and was written during a period of relative stability in Babylonia. However, this latter text mentions that it was a copy of an earlier text. Therefore, while the date of com-

line is justified along to the left edge of the tablet.

107 Ossendrijver 2011, 220

position is unknown it is likely that the micro-zodiac series was composed at some point in the 4th c. BCE and was copied by scribes at least until the beginning of the 2nd c. BCE. There is a stark contrast between these two time periods, yet despite the political and societal changes the micro-zodiac series remained a stable text copied by subsequent generations of scribal families.

While the landscape of the cities was changing, but many of the old institutions were maintained and they supported the work of scribes and their families through an extensive system of prebendary offices. The temples themselves were active places, where a cultic calendar dictated a rigid schedule of ceremonies and rituals which kept the employed scholars busy fulfilling their duties.

The invention of the zodiac had a significant impact on astrology, inspiring a more paradigmatic approach that also included the concerns of a more personal interest rather than the king and nation. The scribes themselves were often adept at a wide range of disciplines, and those who carried the title *ṭupšar enūma anu enlil* in particular had a fluency in both mathematical astronomy and complicated zodiacal astrology, a modern distinction they would not necessarily have recognized. Their families were tightly interconnected through economic activity, inter-marriage, and a collaborative system of scholarship that included apprenticeships.

Such was the context in which the micro-zodiac texts existed. Yet the textual content contained within their tables does not necessarily reflect the changing social, political and re-

ligious landscape of Seleucid Babylon and Uruk. Rather, it is in the conception of the text, and the structure in which the content is inserted that reflects the changing realities of scholarship and life in this period. The tabular layout and its reliance on the zodiac for the organizational structure shows the visual way in which paradigmatic thinking was represented in the astrology of this period. Likewise, the inclusion of daily advice material from the Babylonian Almanac in Row C refocuses the concerns of the audience of these texts on daily life rather than national politics. The content of the micro-zodiac is not new, but that is not expected. Instead, the micro-zodiac represents a new way to think about texts well known to the scribes who worked together to place them in novel layouts that illustrated the paradigmatic efficiency of the zodiac.

Table 1: Catalog of texts written or owned by Anu-bēlšunu, arranged chronologically.

Text	**Date (S.E.)**	**Association**	**Type**	**Description**	**Museum Number**	**Bibliography**
TCL 6, 46	81	Scribe	*kalû ritual*		O 174	
VAS 15 11	83	Scribe	Sale		VAT 9180	
TCL 6, 32	83	Scribe	Measures of Temples	Esagil tablet	AO 6555	George TinTir pp 109.
BRM 4 21	84	Scribe	Omen text	šumma alu	MLC 1867	
BiMes 24 53 / YOS 20 43	88	Party to division	Division of Property	Division of finished house and undeveloped plot	MLC 2170	
VAS 15 34	93	Scribe	Sale		VAT 8553	
YOS 20 46	98	Party to division	Division of Property	Division of finished house and undeveloped plot	NCBT 1958	
TCL 13 242	99	Witness	Sale	Sale of erib-bītūtu and ṭābiḫūtu allotments		
BRM 4 11	108	Owner	Lamentation		MLC 1857	

OECT 9 57	109	Witness	Sale	Sale of erib-bīt-pirištûtu and kutimmûtu allotments		
BaMB 2 12	112	Owner	*kalû ritual*		W 20030/6	
BaMB 2 132 + BiMes 24 3 / YOS 20 55	116	Buyer	Sale	Sale of shares in gerseqqutu prebend	MLC 2201	
ACT 640	119	Owner	Astronomical	Jupiter System B	A 3426	
VAS 15 32 / HSM 913.2.181	119	Buyer	Sale		VAT 7534	
ACT 102	120	Owner	Astronomical	Lunar System B	A 3432 + AO 6491	TCL 6, 23
VAT 7815	120	Owner	Calender Text		VAT 7815	Weidner GDBT, Brack-Bernsen and Steele 2004
ACT 620	127	Owner	Astronomical	Jupiter System B, iffy colophon	AO 6480	TCL 6, 29
ACT 400	111-135	Owner	Astronomical	Venus System A_0	A 3415	
ACT 135	121-127	Owner	Astronomical	System B Eclipse Text	AO 6485 + AO 6487	TCL 6, 24

A 3405	121-127	Owner	Astronomical	Tablet of Planetary Phases	A 3405	Steele 2000
TCL 6, 12 + VAT 7847	n.d.	Owner	Microzodiac		AO 6448 + VAT 7847	Weidner GDBT
BiMes 24 9	n.d.	Beneficiary	Quitclaim		A 3681	
ACT 800a	n.d.	?	Astronomical		A 3409	
TCL 6, 45	n.d. (Seleukos IV)	Scribe and Owner	kalû ritual		AO 6472	
NCBT 1232	n.d.	?	Horoscope	Personal Horoscope	NCBT 1232	Beaulieu & Rochberg, JCS 48

3 The Micro-zodiac Series

3.1 Introduction

In this chapter I present all the known micro-zodiac texts, including both unpublished and previously published tablets. The largest of the published tablets, Text 2 (VAT 7851), Text 3 (BM 34572+) and Text 7 (VAT 7847+) were edited by Weidner in his initial study of the micro-zodiac material.[108] The unpublished tablets all come from the British Museum. I have been able to colate the texts from the British Museum and the Louvre; but unfortunately I was not able to colate the texts from Uruk in the Pergamon Museum in Berlin or in the Iraq Museum in Baghdad.

The texts are presented here ordered by the location of their Major signs within the zodiac. The organization of the texts differs slightly from a traditional text edition. Because of the regularity of certain sections of the micro-zodiac, Rows A and B have been excerpted into composite editions and will be edited and commented on before the editions of the individual tablets. Where texts are linked either through structure or content and duplicate each other, it is noted in the critical apparatus.

The chapter starts with a general overview of the contents of the micro-zodiac with brief summaries of each section according to the Uruk layout of the text. Next a descriptive catalog of all the texts is presented, followed by an edition of Rows A and B as composite texts. Finally, the known micro-zodiac texts are edited individually.

108 Weidner 1967

3.2 Overview of an ideal micro-zodiac tablet

This section will present an overview of an ideal micro-zodiac tablet, covering the standard rows and other shared features of the tablets in the order in which they are found on the tablet. It will be based on the material from Uruk, which preserves the most complete picture of an entire table. The only major differences between the Uruk and Babylon traditions are the absence of iconography on the Babylon tablets and a difference in the ordering of the rows, about which more will be said. However, the content of the table in both traditions remains the same.

The micro-zodiac tablets are governed by an organizational scheme that is based on the twelve signs of the zodiac. Each table is governed by a single Major sign, under which are twelve minor signs. The first, and leftmost, minor sign begins with the same sign as the Major sign governing the table. The relationship between the micro-zodiac scheme and the *dodekatemoria* and Calender Text schemes is investigated in more detail in Chapter 4. A brief introduction will be useful here however. The micro-zodiac scheme divides the Major sign or month into twelve units, each given a minor sign, this scheme can be called the micro-zodiac of 12. This is contrast to the micro-zodiac of 13 where under each Major sign there are 13 minor signs, where the first and last minor signs are the same. The micro-zodiac of 13 models the ideal movement of the moon through the ecliptic during one month. The daily movement is 13° or 390° for the entire month. Returning to the micro-zodiac of 12, this scheme does not at-

tempt to model the ideal motion of the moon and instead only divides the month into twelve parts, each of which is assigned to a two and a half day period.

The table that follows outlines the entire scheme from Aries to Pisces with each of the minor signs laid out beneath their governing Major sign. The first two rows present two models for the application of days of the month onto the micro-zodiac scheme. The evidence from Row C suggests that the application of the micro-zodiac columns onto days of the month follows the later of the two schemes, the micro-zodiac of 12, i.e. each column is equated with a two and a half day span of time.

Days for micro-zodiac of 13:											
1 - 2	3 - 4	5 - 6	7 - 9	10 - 11	12 - 13	14 - 16	17 - 18	19 - 20	21 - 23	24 - 25	26 - 27[109]
Days for micro-zodiac of 12:											
1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	10 - 12.5	12.5 - 15	15 - 17.5	17.5 - 20	20 - 22.5	22.5 - 25	25 - 27.5	27.5 - 30
Aries (I)											
Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces
Taurus (II)											
Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries
Gemini (III)											
Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus
Cancer (IV)											
Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini
Leo (V)											
Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer
Virgo (VI)											
Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo
Libra (VII)											
Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo
Scorpio (VIII)											
Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra
Sagittarius (IX)											
Sagittarius	Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio
Capricorn (X)											
Capricorn	Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius
Aquarius (XI)											
Aquarius	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn
Pisces (XII)											
Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius

Table 2: The Micro-zodiac scheme

109 Note that the days for 28-30 would be assigned to the first column.

The description below covers the general layout of the micro-zodiac texts. The standard text includes the following elements: Prayer, Initial Omen, Images of the ecliptics and/or labels, minor sign Headings, Material Row, Calculation Row, Row A, Row B, Row C, and the Number Row. Each of the sections and rows will be covered in the order in which they appear on the tablet. Some of the tablets differ in what standard parts of the text they include or omit, but for the purposes of this description I am following the Uruk tablets. The table below illustrates an ideal complete micro-zodiac table with each of the twelve columns for the minor signs and all the rows.

Prayer											
Initial Omen											
Images and/or labels											
Headings											
Material Row											
Calculation Row											
Row A											
Row B											
Row C											
Number Row											

Table 3: Complete Micro-zodiac table

Generally each text starts with a standard prayer. It is important to note that this prayer is associated with the entire tablet and is not a preface to a particular table or included for both.

ina amāt ^{d}60 *u antu lišlim*

"By the command of Anu and Antu may it go well."[110]

Then there is a longer Initial Omen, which includes a lunar eclipse occurring within the Major sign of the table. The location of the eclipse is somewhat problematic. If we accept that the Major sign is equivalent to a month within the year, then the lunar eclipse for that month would occur in the middle of the month roughly six signs after the Major sign of the table. More likely is that the omen is included for topical reasons, i.e. the zodiacal sign is the same therefore the contents also have relevancy to the material present in the table below.

Interestingly, this set of initial omens all seem to have been preserved on a tablet, BM 36746+, edited by Rochberg.[111] The twelve omens draw from the terminology and subject matter of *Enūma Anu Enlil*. It is important to note that each omen also includes a place and wind direction which match with the paradigmatic triplicity system for months and zodiacal signs. Rochberg noticed the parallels with the extant micro-zodiac texts in her article. The unpublished texts included in this study, when they preserve an Initial Omen, also parallel the content on BM 36746+.

After the Initial Omen, the two large tablets from Uruk have large incised images of constellations which illustrate zodiacal signs, neighboring constellations, and planets. The planets, when included, are in their *hypsoma* (*bīt niṣirti* in Akkadian). Generally the celestial bod-

110 This is the case for the tablets from Uruk. None of the texts from Babylon preserve a prayer, if they did it would have included *bēl* and *bēltīja* (Rochberg 2004a, 115).

111 Rochberg-Halton 1984

ies depicted are also labelled. Interestingly, none of the tablets from Babylon include the images where the appropriate part of the tablet is extant, but they all preserve the labels in their own row which spans the width of the tablet.[112] This suggests that with or without an image there existed an idea of what celestial objects were important for the micro-zodiac table contained below. Weidner, in an earlier article, edited a text which described constellations and their related planets. He noted the similarity between the description of the Lion constellation and the depiction of Leo on Text 7 (VAT 7847+).[113] The image of the moon on the Taurus tablet, Text 2 (VAT 7851), was studied by Beaulieu.[114]

After the labels the tablet is then broken up into twelve columns each assigned to a minor sign. Four larger rows are demarcated with a number of smaller rows marked at different points of the tablet. In all of the tablets these rows and columns are incised onto the surface of the tablet. The lines were layed down first, after which the contents of the cells was written into the space provided. This is illustrated by two phenomena. The first is that the lines of the rows and columns are in many cases distorted by the signs written afterwards. The second is best exemplified on Text 4 (W 22554, 7a), where the contents of the cells run over the incised lines, and the scribe used the G*lossenkeil* marker to indicate the new artificial end of the line (see the discussion in Chapter 5).

112 Only Text 1 (BM 42288+), Text 3 (BM 34572+), and Text 10 (BM 36292) preserve this part of the table and all have labels.

113 Weidner 1927, 80–81

114 Beaulieu 1999

The headings for the columns are written perpendicular to the flow of text on the rest of the tablet. Two of the headings are always written with double names for the zodiac sign: Taurus is written: MUL.MUL ^{mul}GU$_4$.AN.NA and Gemini is written: ^{mul}MAŠ.MAŠ ^{mul}SIPA.[115] The rest of the signs are written with standard names for the zodiacal signs, but note that these are not the late simple version of the sign names, ḪUN for Aries, A for Leo. The signs used for the headings in the micro-zodiac are as follows:

^{mul}LU$_2$.ḪUN.GA$_2$	Aries
^{mul}GU$_4$, MUL.MUL	Taurus
^{mul}SIPA, ^{mul}MAŠ.MAŠ	Gemini
^{mul}AL.LUL	Cancer
^{mul}UR.A	Leo
^{mul}AB.SIN$_2$	Virgo
^{mul}GIŠ.RIN$_2$	Libra
^{mul}GIR$_2$.TAB	Scorpio
^{mul}PA.BIL.SAG	Sagittarius
^{mul}SUḪUR.MAŠ	Capricorn
^{mul}GU.LA	Aquarius
^{mul}AŠ.GANA$_2$	Pisces

Table 4: Signs of the zodiac

After the labels, the tables standardize into six regular rows. Each of the six standard rows in the micro-zodiac contains a certain subset of information. The first row contains materials[116] following a general order starting with dust of a certain place (often a temple or city),

115 This double naming is also attested on the TE-tablet (Weidner 1976, 121).

116 This row along with other aspects of materials used in astral-medicine are the subject of a forthcoming dissertation by Marvin Schreiber of the Humboldt University in Berlin.

a type of wood, a type of plant, and one or more stones.[117] This row seems to have an inverse relationship with the Calender Text series when the relevant cells are preserved. For instance the Material Row for Leo-Aries on Text 7 (VAT 7847+) is almost an exact parallel of the Material Row section of Aries-Leo on the Calender Text VAT 7816. It is important to note that the order of the numbers in the Calender Text is read as Leo-Aries (V I) even though the scheme makes it clear that Aries (or Month I) in this case is the Major sign.

The Material Row is clearly borrowing from contemporary texts that list materials used in medicine.[118] In particular the texts Finkel calls Stone List 1, 2, and 3 and Plant List 1 and 3 preserve many of the same materials found in the Material Row. The astral-medicine text BM 56605 edited by Heeßel preserves the association of materials and zodiac signs, while many of the same materials are found in both this text and the micro-zodiac materials, there are no obvious parallels between the two traditions.[119] Finally, the incantation and ritual text SpTU 2, 22 + SpTU 3, 85 includes lists of stones and plants throughout. Many of these materials also appear in the Material Row. What is clear from these near-parallel texts is that the contents of the Material Row were borrowed, but not directly copied, from a shared knowledge of medical materials that appeared throughout the scholarly corpus.

117 Another text which uses dust of locations frequently along with other medical ingredients within the zodiac tradition is BM 76483 (Scurlock and Al-Rawi 2006).

118 Finkel published a few of these texts in the Lambert FS (Finkel 2000).

119 Heeßel 2000, 112–130

Following the Material Row is a row I call the Calculation Row, in all cases it stretches across the entire tablet from one edge of the tablet to the other ignoring column boundaries.[120] It contains a very standard set of phrases all tied to a numerical scheme which also involves the first number of the Number Row mentioned below.

> The paradigm for each of the Calculation Rows is as follows:
> 3;20 ^{mul}UR.GU.LA ḪA.LA AN.TA *šá*$_2$ ^{d}SAG.ME.GAR *ina* ^{d}UTU ŠU$_2$.A 1;40 1;40 *šu-ut* ^{d}*a-nu*$_3$ *ina* ^{d}UTU ŠU$_2$.A 50 50 *šu-ut* ^{d}*e*$_2$*-a ina* ^{d}UTU ŠU$_2$.A 25 KI IRI.MEŠ *an-nu-tu*$_2$ *ina* ^{mul}UR.GU.LA KUR URI ^{ki} EŠ.BAR GAR-*nu* ME-*a* GAR-*an*
>
> 3;20 Leo, upper portion of Jupiter, at sunset 1;40, 1;40 those (stars) of Anu at sunset 50, 50 those (stars) of Ea at sunset 25, a sign of these cities Leo, the land of Akkad, makes a decision, you make a prediction.

The numbers used for the Calculation Row are found in the table below. The numbers represent a zigzag scheme for the length of daylight. The scheme differs from the MUL.APIN tradition in that maximum daylight is located in the third month/sign and not in the fourth.[121] Rather it seems to follow scheme found in EAE 14.[122] Additionally, all but the fourth column are present on the astrolabe texts.[123] The second column of numbers is also the first number of the Number Row for the associated sign:

120 This occurs at the bottom of the table in the texts from Babylon.

121 Hunger and Pingree 1989, 103

122 Al-Rawi and George 1991, 57

123 Horowitz 2014

	n	n/2	n/4	n/8
Aries	3;20	1;40	50	25
Taurus	3;40	1;50	55	27;30
Gemini	4	2	1	30
Cancer	3;40	1;50	55	27;30
Leo	3;20	1;40	50	25
Virgo	3	1;30	45	22;30
Libra	2;40	1;20	40	20
Scorpio	2;20	1;10	35	17;30
Sagittarius	2	1	30	15
Capricorn	2;20	1;10	35	17;30
Aquarius	2;40	1;20	40	20
Pisces	3	1;30	45	22;30

Table 5: Number Row

The next row, Row A, concerns itself with divinatory material coming primarily from the tradition of celestial omens, including the well-known celestial series *Enūma Anu Enlil*. Row B contains material relevant to the opening of the gates of various gods and other generally cultic material. The entries always begin "Day of ..." which is followed by either the opening of a gate, and the names gods and their epithets. Finally, Row C contains material very reminiscent of the Babylonian Almanac.[124] Like Row B, it consists of relatively self-contained short pieces of advice, consisting of only a few words each. Some are as simple as only ŠE.GA, "favorable", other contains prescriptions to supplicate before gods. Many of the cells reference

124 The texts which seem to be closest to Row C are the Babylonian Almanac, the Offering Bread Hemerology, and the Prostration Hemerology. These texts were recently edited by Livingstone (Livingstone 2013).

judgements, *dīnu*, or conflicts, *ṣāltu*. The contents are clearly derived from the Babylonian Almanac tradition and concern daily actions or advice for a presumed client.

As with any section of the micro-zodiac, it is unclear how the contents of these cells would map on to the days of the month. Unlike Rows A or B, the cells in Row C are unique in the entire scheme. For the most part there are no obvious similarities among cells under the same Major sign.

Despite the fact that Row C is unique for each column of the micro-zodiac there are, at times, general themes that can be found amongst the entries for the same minor sign across the tables of each Major sign. These general assumptions are not completely certain as none of the cells are preserved for more than six of the same minor sign, constituting, in the best case, only half of the possible entries.

- Aries: avoiding snakes, unfavorable judgements.

- Taurus: very closely associated with conflict, and less so with a prohibition against eating bull meat.

- Gemini: no obvious associations in the current corpus.

- Cancer: associated loosely with prostrating to Šamaš and a lesser extent with Sîn.

- Leo: no obvious associations in the current corpus.

- Virgo: associated with both positive and negative advice for eating fruit. The minor sign is also somewhat associated with a favorable judgment.

- Libra: loosely associated with prostration to Šamaš.

- Scorpio: like Taurus, is also associated with conflict.

- Sagittarius: also conflict and generally not favorable.

- Capricorn: associated with not eating fish.

- Aquarius: avoiding both boats and the streets, also associated with joy.

- Pisces: associated with positive relationships with women.

At the end, there is a small row at the bottom of the tablet which assigns numbers to each of the columns. These numbers always count down from the left edge of the tablet and seem to come from daylight schemes for the months throughout the year.[125] They are problematic however because on all of the tablets they count down when for half of the year they should count up.

All the four major rows (Material Row, Rows A, B, and C) interact with the table in different ways, some are unique to a particular combination of Major and minor sign, others remain constant between different Major signs. The medical Material Row and Row C seem to have unique content for every single column, and Major-minor sign pair. This means that we are missing large parts of the unique text from these rows as the preservation of the entire series is not perfect. On the other hand, rows A and B repeat the same content whenever the minor sign is the same.[126] So for example, the cultic advice for the column identified as Gemini-aquarius will be the same text as the cultic advice under Leo-aquarius:

125 These number probably come from the astrolabe tradition mentioned above for the Calculation Row.

126 There are often small orthographic differences between two versions of the same cell.

Gemini-Aquarius	Leo-Aquarius
UD ⌜UR.SAG GAL-*u*⌝ ⌜^{d}AMAR.UTU⌝ *u* ⌜^{D}MAŠ⌝	u_4-*um* UR.SAG GAL-*u* ^{d}AMAR.UTU *u* ^{d}*nin-urta*
Day of the great warrior Marduk and Ninurta.	Day of the great warrior Marduk and Ninurta.

Table 6: Row B similarities

Unlike the Material Row and Row C, we can reconstruct the entire contents for both Row A and Row B, as enough of the tablets remain to identify the content from each minor sign. Thus, a small fragment with only the material from rows A or B cannot be located to a distinct point in the series, because of the repetitive nature of this column in the text. However, its content can be identified as far as the minor sign is concerned.

The following figure outlines the structure of the main rows for both the Uruk and Babylon tablets. The two tablets used here are Text 7 (VAT 7847+) for the Uruk exemplar and Text 3 (BM 34572+) from Babylon. The arrows mark the reordering of the Rows A, B, and C. The reordering of rows is covered in more detail in Chapter 5.

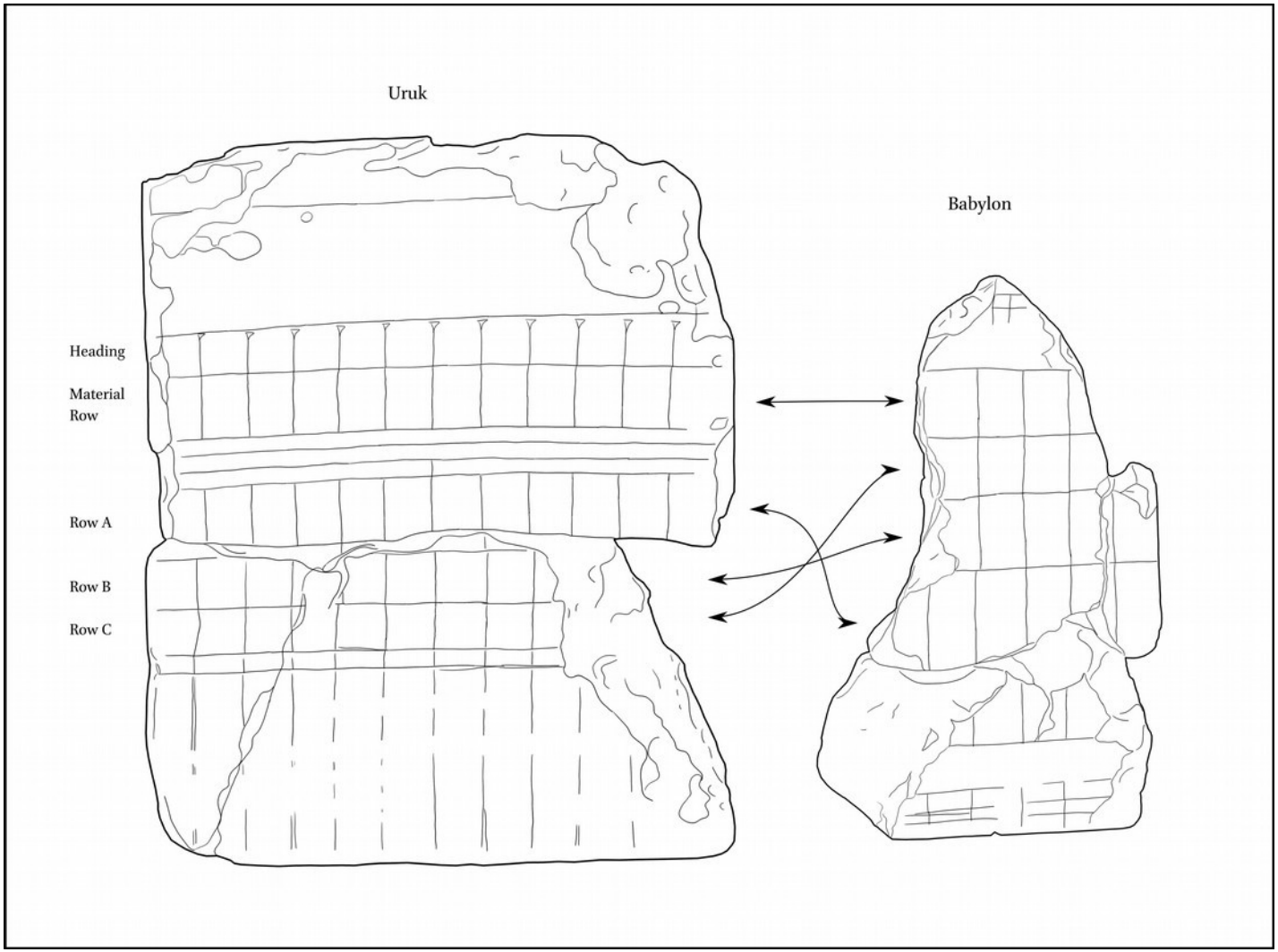

Figure 1: Reordering of rows in Uruk and Babylon

3.3 Descriptive Catalog

3.3.1 Text 1 (BM 42288 + 42644 + 43414 + 43716)

These fragments were joined in the British Museum by the author and represent a somewhat unusual form of the micro-zodiac table attested on only one other tablet (Text 2). Unlike the other tablets mentioned here both sides of this tablet refer to the Major-sign Aries, with the beginning of the table starting on the obverse and then continuing onto the reverse. This is contrary to most examples of the micro-zodiac where each side of the tablet is assigned to a unique Major-sign. Curiously, the minor-sign headings begin roughly halfway down the tablet judging by the thickness visible due to its fragmentary nature. This suggests that other material was inserted above the micro-zodiac table on this particular tablet. In general the columns on this text are much longer and narrower than as found on the other examples of the micro-zodiac, perhaps giving a reason for the fact that it contains only a single sign. Another distinguishing factor is that this tablet, despite its probable Babylonian provenance, follows the Uruk order of the rows, with the Material Row first, followed by Rows A and B (Row C is not preserved on this text). However, it is clear that the iconography present on the Uruk material was not included on this tablet. This is somewhat similar to Text 11 (K11151+), however both of these texts diverge from the normal layout in other ways as well.

3.3.2 Text 2 (VAT 7851)

This tablet unfortunately is missing all but the top edge of the micro-zodiac table. However, its illustration of Taurus makes it clear that it would have contained the material for the

Major sign Taurus. The band of illustration at the top of the table contains a depiction of the Pleidies, with the label MUL.MUL, the moon showing a hero fighting a monster on its interior, and finally the drawing of the Bull of Heaven. The image of the moon was discussed at length by Beaulieu.[127] Preserved on the reverse near the bottom edge is a piece of a circular diagram with text not connected to the micro-zodiac.

3.3.3 Text 3 (BM 34572 + 81-7-6, 705 + Sp-II, 253)

This larger fragment was included in Weidner's study of the micro-zodiac as Text 3. It preserves a vertical slice of the center of the table of two Major signs, Gemini and Cancer. Both sides contain all rows of content and the numerical scheme at the bottom. The identification of this piece has been aided by the addition of a small fragment to the right side of the obverse, which happened after its publication by Weidner. This small fragment preserves the edge of the tablet allowing for the full sequence of the micro-signs to be reconstructed.

3.3.4 Text 4 (W 22554/7a)

This text from the excavations in Uruk was edited by von Weiher in SpTU IV.[128] It preserves both sides of a tablet which contained the micro-zodiac tables for the Major signs Gemini and Cancer. The obverse and reverse are interchanged in von Weiher's copy and edition of the text. Hunger published a revised edition of this text in the appendix of an article.[129] The only remaining material is from Rows A, B, and C and a small part of the numerical scheme on

127 Beaulieu 1999

128 von Weiher 1993, no. 167

129 Hunger 2007, 149

the obverse (Gemini) and Rows A, B, and C on the reverse (Cancer). Both sides contain the last three columns of the Major signs. The numerical scheme here can be restored and would have started with 1;50.

3.3.5 Text 5 (BM 39680)

Like the tablet above, this small fragment only preserves a small section of the micro-zodiac table but luckily the Material Row preserved on this piece parallels material on Text 3 (BM 34572) allowing for its identification as belonging to the Major-sign Gemini. The small complete section here preserves the material section for the minor-sign Capricorn under the Major-sign Gemini. This fragment probably joins with texts 6 (BM 38452) and 13 (BM 39788).

3.3.6 Text 6 (BM 38452)

This tablet probably joins texts 5 (BM 39680) and 13 (BM 39788) to form one larger micro-zodiac text for the Major-signs Gemini and Cancer. On this small fragment only the Material Row for four minor-signs of Cancer are preserved. The identification of this fragment rests on a small section of a row after the Material Row. In this section the number 1;50 is preserved roughly in the same horizontal position as the name of the minor-sign Scorpio written two rows above it. On the Leo side of Text 7 (VAT 7847+) in a similar section the number 1;40 is written similarly close to the same position, under Scorpio. Following the pattern of the numerical system used in these texts it follows that this small fragment would come on the side prior to Leo, i.e. Cancer.

3.3.7 Text 7 (VAT 7847 + AO 6448)

These two halves of the same tablet were separated on the antiquities market, and eventually made their way into two different collections, the Vorderasiatische Museum and the Louvre respectively. They constitute the best preserved copy of a micro-zodiac tablet thus yet. Not surprisingly Weidner used them as a core part of his treatment of the micro-zodiac. Together they preserve all sections of the micro-zodiac for the Major signs Leo and Virgo. After the table on the reverse the tablet contains a long list glosses some of which reference astronomical terminology. These two halves are perhaps best known for the illustrations on the upper portion of the tables on each side. The obverse has Leo the lion standing on the back of the constellation Hydra with the planet Jupiter drawn and labeled. The reverse shows on the left edge the constellation Corvus biting the tail of Hydra from the obverse side and in the center of the band Virgo standing facing the planet Mercury.

3.3.8 Text 8 (BM 32517 (+) BM 32716)

These two small fragments clearly are part of the same tablet although a physical join is not present. The smaller of the two, BM 32516, shows obvious continuation of the incised lines on the larger fragment and preserves the names of two micro-signs which follow from those preserved on the larger piece as well. The obverse and reverse are both partially preserved and contain the middle part of the micro-zodiac table for the Major signs Libra and Scorpio. On the obverse, Libra, the ends of three columns with Row A are preserved as well as the numerical scheme. The reverse, Scorpio, preserves the beginning of the table with the minor-sign names and a small part of the introductory omen. The identification of this text can

be made through two features. First the numerical scheme on the obverse is not preserved fully, but the extant numbers allow the total range to be determined which limits the identification to only two signs. This in conjunction with the preserved material from Row A helps to identify the location, i.e. if one of the two signs specified by the numerical scheme were present in the preserved contents of Row A it could be ruled out because Row A for that sign should be on the left edge of the tablet not in the middle. Secondly the omen on the reverse has direct parallels with the material published by Rochberg on BM 36746.[130] This fragment preserves part of the Scorpio omen as reconstructed by Rochberg which in conjunction with the numerical scheme on the obverse identifies this fragment with the major signs Libra and Scorpio as mentioned above.

3.3.9 Text 9 (BM 41583)

This fragment of the micro-zodiac preserves the table for two Major signs, Libra and Scorpio. It probably joins Text 8 (BM 32517+) although no physical join is possible. It was briefly mentioned by Weidner, who noted the existence of the Material Row on its reverse. The obverse preserves both Row A and B for the Major sign Libra, and the reverse contains fragmentary portions of the Material Row for Scorpio. In both cases only the right edge of the side is preserved, which aided in the tablet's identification through the rows on the obverse.

3.3.10 Text 10 (BM 36292)

130 Rochberg-Halton 1984

This tablet preserves parts of the micro-zodiac table for the Major signs Aquarius and Pisces. The obverse contains the end of the Row A cells for six minor-sign columns, and the numerical scheme. The reverse preserves traces of the initial omen, the labels, the minor-sign names, and the first two rows of the micro-zodiac table. The fact that the left edge is preserved on both the obverse and reverse makes its identification quite easy. The Row A material on the obverse and the numerical scheme both start with their first column which allows for the positive identification of the first minor-sign and thus the Major-sign for the obverse. Furthermore, the reverse contains the first column of the minor-signs, in this case Pisces. In addition, on the reverse, there are two rows after the traces of the initial omen which preserve the labels that would normally be found on the illustration section of the Uruk tablets. The first label in this case reads "Pisces", securing its identification.

3.3.11 Text 11 (K 11151 + BM 68063 + BM 76348 + BM 82976 + BM 83006)

Weidner published the central part of this tablet in his study of the micro-zodiac. However, since then many more pieces have been joined to it, expanding its dimensions greatly. The joined fragments all belong to collections from Babylonia which solves the issue of the Kuyunjik number, which is now clearly a error in accessioning.[131] With the new pieces, it is now clear that it contains six Major signs of the micro-zodiac on each side in an abbreviated form. The whole micro-zodiac table has been condensed to three rows, with the omission of Row A and some of the other extraneous material. This tablet represents a new form of the

131 It seems initial joins were done by Lambert. The accession dates of at least one of the joined tablets is 82-9-18, a lot which Reade notes as from Sippar with intrusive elements (Reade 1986, xxxiii). The join fragments from this collection almost certainly belong to the intrusive fragment from Babylon and are not from Sippar.

micro-zodiac that will be commented on later in this study. The text does not preserve any zodiac names for either the Major or minor sign designations, but identification of its content can be done through parallel sections. Interestingly the order of the rows mirrors that of the Uruk tablets, with the Material Row first, followed by Rows B and C (omitting Row A).

3.3.12 Text 12 (BM 35784)

This small fragment preserves the beginning of the table for the minor-signs Libra, Scorpio, and Sagittarius. Only the minor-sign names and the beginning of the Material Row are preserved, there are small unreadable traces of the initial omen. The lack of an edge or later rows currently prohibits the identification with a Major-sign.

3.3.13 Text 13 (BM 39788)

This small fragment preserves a small piece of the end of the micro-zodiac table before the numerical scheme. Its placement in the series is uncertain, but judging from the script it most likely belongs with texts 5 (BM 39680) and 6 (BM 38452). It is at this point uncertain whether this fragment would join the obverse or reverse of the larger tablet.

3.3.14 Text 14 (BM 41041)

This small unpublished piece was brought to my attention by Jeanette Fincke and Christopher Walker. It preserves Row B and C from the minor signs Cancer and Leo, but no hints to the Major sign of this fragment remain.

3.3.15 Text 15 (BM 33535)

Hunger published this complete tablet in an article in 2007.[132] It contains two sections of the micro-zodiac in a slightly different format. Instead of a tabular layout this tablet lays out the micro-zodiac material in a linear arrangement with the Material Row first, then Row B, followed by a section of ritual and medical instructions. Only two minor signs, Gemini and Cancer of the Major-sign Sagittarius, are present in this alternate format. Interestingly the ritual section is given in terms of month-long periods, so the minor-sign Gemini is associated with the month Simānu, and the minor sign Cancer with Dûzu. One would expect that the minor sign would be associated with small intervals of time since they make up two and a half days (or degrees) of the entire year. This may be a case of scribal confusion however, as Gemini and Cancer read as zodiacal signs, governing the entire lunar month, are both analogous for the months Simānu and Dûzu. Still the use of the phrase "from the 1st to the 30th day" with both month designations seems to run counter to the overall structure of the micro-zodiac.

3.4 Row A: Composite Edition and Commentary

Description:

Row A appears on the micro-zodiac texts, either as the second or last row depending on whether the tablet comes from Uruk or Babylon respectively. It, like Row B, contains only twelve standard cells throughout the entire micro-zodiac corpus. Its contents are determined solely by the minor-sign under which it appears. For instance, a Row A cell from Scorpio-Sagittarius, is the same as a Row A cell from Pisces-Sagittarius. This results in a constant

132 Hunger 2007

movement of the cells leftwards. As the text progresses through the major signs, each subsequent table the entire row has shifted one cell towards the left edge of the tablet. It seems clear that the equation of zodiac sign and month is important for the understanding of this section as will be seen in the textual parallels included in the commentary.

The contents of these cells are drawn from a number of sources, most of which are attested on Late Babylonian tablets found in Uruk (e.g. TCL 6 and SpTU)[133] and Babylon. While we might expect a great deal of astrological material to have been used in the composition, from EAE and other sources, it is interesting to note that *iqqur īpuš* figures heavily in the potential sources. The relationship between the meteorological omens in *iqqur īpuš* and the relevant tablets in EAE has been commented on by Rochberg and Gehlken.[134] The material in these cells does not help to solve the issue of borrowing between *iqqur īpuš* and EAE, and it is often difficult to tell from which series the content is being drawn.

However, what is important to note is that the contents of these cells are not explicitly copied from another text.[135] While small sections of text within a cell might parallel a similar excerpt from another text, they are not copied in context, i.e., the material surrounding the source text is not taken into account in the representation of the excerpt in the cell of Row A. Instead, the general picture one gets from reading the Row A material is that it conforms to

133 The texts published in TCL 6 and the SpTU series provide sources with a great deal of proximity both in time and space to the micro-zodiac texts (including some of the micro-zodiac tablets in this study). Their relationship to the micro-zodiac texts is covered in Chapters II and IV.

134 Rochberg-Halton 1988b, 252; Gehlken 2012

135 Obviously, we must allow for copying from other micro-zodiac texts.

the overall understanding of astrological associative meaning in Mesopotamia. The relationships present in these cells between planetary phenomena and divinatory apodoses are not specific, but rather follow the general principles of astrological reasoning. In fact, it is striking how much the content in these cells matches Ulla Koch's general synthesis of astrological "principles" drawn primarily from the Neo-Assyrian evidence.[136]

The syntactic structure of the cells is difficult to comprehend, and my interpretation here is by no means without question. At the most basic level the cells contain a series of statements beginning with KI, *qaqqaru*, "place or region (of)".[137] These presumably signify that the minor-sign under which they occur is relevant to the apodoses contained within the cell, or functions as a modifying element to the planetary protases. Only the Aquarius section is missing a KI statement. If the omission is purposeful in Aquarius, and there is no reason to assume it is a scribal mistake,[138] then it must mean that the KI is not necessary for the understanding of the content. The Aquarius section does not differ from the other sections in any other noticable way; the vocabulary and syntax is otherwise in line with the rest of the contents of Row A.

The next major syntactic element is the inclusion of planets with or without an introductory proposition, *ana,* "to, for, or concerning".[139] The planets are often described as bright

136 Koch-Westenholz 1995, 97–136

137 CAD Q 121 *qaqqaru* 5b for locations in the sky.

138 Four out of six Row A Aquarius sections in the micro-zodiac preserve the first line and in all the KI is absent.

139 The sections for Gemini and Cancer omit the planets. This suggests that the interpretation here rests on the location of the moon within the zodiac sign assigned to the column.

(KUR$_4$, *ba'ālu*),[140] faint (SIG, *unnutu*).[141] Sometimes they are grouped in a pair or triple. The description, bright or faint, of a planet can either occur directly after the planet name or separated by an apodosis. There is significant difficulty in attributing the apodoses of the cell to the planets. The strategy I have employed here is as follows. Reading from the beginning of the cell, all apodoses apply to the first planet (or group of planets) mentioned. Continuing on, any apodoses apply to next mention of planets. This pattern is reversed when the first element of a cell is a planet in which case I interpret any apodoses that follow as applying to the first element, until the next planet is mentioned. I am not entirely sure this is the correct method, but in many cases it produces results that match conceptual parallels in other texts.

The material seems to share concerns with a group of Late Babylonian texts that connect constellations and signs of the zodiac with a variety of concerns. These texts will be explained more thoroughly in Chapter 4, but a brief overview here will familiarize the most frequently referenced texts.

TCL 6, 19 and 20,[142] use constellations and the zodiac, respectively, to predict meteorological events. SpTU 1, 94 and TCL 6, 16 both use the appearance of planets to predict outcomes for business. The connection between business in the Astronomical Diaries and divinatory corpus was explored briefly by Slotsky in her book on commodity prices.[143] She points to ex-

140 CAD B 1 *ba'ālu* 2a.

141 CAD U/W 166 *unnutu* 1b.

142 Hunger 1976

143 Slotsky 1997, 17–19

cerpts from EAE, specifically the texts in BPO 2, as well as the micro-zodiac tablets, and other texts for evidence of a general concern with the economic affairs in divinatory literature. But, she notes that there are some important difference that preclude the diaries from serving as a source for omens or apodoses. It seems more likely that the data from the diaries was collected in a similar aim to the omens, i.e. to record quantifiable results in order to explore the relationship between "celestial events on the one hand and terrestrial phenomena on the other."[144]

There are numerous parallels with material from *iqqur īpuš*[145], especially §88-94 (thunder), §100-101 (earthquakes), §102 (mud), and §103-104 (flood). Interestingly, not many parallels can be found in the menology section of *iqqur īpuš*. Finally, the last text that appears frequently in this commentary is BM 47494, which contains five sections of astrological content, a few of which concern business in particular among other topics.[146] It uses both constellations and signs of the zodiac.

Composite Transliteration and Translation:

This composite transliteration is based primarily on the Uruk exemplar, Text 7 (VAT 7847+) with restorations from the Babylonian texts where necessary. The transliteration will be divided by minor sign in order, and each subsection will include the tablets on which this section is wholly or partially preserved. Where individual texts differ from this composite ver-

144 Slotsky 1997, 19

145 Labat 1965

146 Hunger 2004

sion, the differences are noted in the edition of the text itself. Any commentary relevant to the additions or omissions on the individual text can be found there. Line numbers and any other physical representation of the text are included in the text edition. Each tablet of the micro-zodiac texts presents the text in a slightly different way, with different line numbers and line lengths, therefore in this section, each cell is treated as one continuous stream of text.

3.4.1 Aries

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 36292 (Aquarius),

KI GANBA SUM.SIKIL ŠE.BAR.RA *ana* ^{d}SAG.UŠ ^{mul_2}BABBAR SIG.SIG-*ma ana* ^{d}*ṣal-bat-a-nu* ZI KUR_2 KUR_4-*ma ana* $^{d}GU_4$ $ŠEG_3$ SIG.SIG-*ma*

"Sign of trade of onions (and) barley for (when) Saturn (and) Jupiter are faint; for Mars attack of an enemy (when) it is bright; for Mercury rain (when) it is faint."

Commentary:

I am translating SUM.SIKIL (*šamaškillu*) here as "onion", and while the identification is not certain, it is almost certainly an alliaceous plant.[147] It often appears alongside *karašu*, and *šūmū*, tentatively identified with leek and garlic respectively. I use "onion" here out of convenience. Trade or business (GANBA, *maḫīru*)[148] shows up in both pre-zodiacal and zodiacal astrological texts. In EAE 56 trade is affected when a planet reaches (KUR, *kašādu*)[149] certain months. This section of EAE is known from one exemplar, a Late Babylonian copy, TCL 6, 16,

147 Slotsky 1997, 31–32

148 It is also a frequent apodosis in the wider omen tradition (CAD M/1 94, *maḫīru* 2c).

149 CAD K 272 *kašādu* 1a.

which identifies itself as the 56th tablet of EAE in the colophon. This text was written by Anu-uballiṭ (Ḫunzu) and owned by Nidintu-Anu (Ekur-zākir), the colophon dates it to the 30th day of Tašritu (VII) 97 S.E. (214 BCE).[150]

TCL 6, 16:
obv. 1 ⌜*ina* ^{iti}BARA$_2$⌝ ^{mul}UDU.IDIM IGI ŠE-*u* ŠE.GIŠ.I$_3$ SI.SA$_2$ ⌜GANBA⌝ *ina-pu-uš*

"(If) in Nisannu (I) a planet is visible: barley and sesame will do well, business will expand."

Another Late Babylonian text associates sections of the zodiac, rather than months, with outcomes for business. This text was written by the scribe Iqīšâ, who was also the author of two Calendar Texts (SpTU III, 104 and 105, see Chapter 4).

SpTU 1, 94:
Concerning the movement of Jupiter:
rev.
7 TA ^{mul_2}GU.LA *a-di* KUN[151] ^{mul_2}ḪUN.GA$_2$ *u$_2$-qat-tu-u$_2$* GANBA LA$_2$-*ṭi*
8 TA *qi$_2$-ti* ^{mul_2}ḪUN.GA$_2$ *a-di* MUL$_2$.MUL$_2$ ^{mul_2}GU$_4$.AN.NA[152] GANBA GAL$_2$-*ši*

"From Aquarius until the tail of Aries is finished: Business will decrease
From the end of Aries until the Pleiades (and) Bull of Heaven: Business will exist."

Concerning the movement of Saturn:
rev.
13 TA ^{mul_2}SUḪUR.MAŠ$_2$ EN ^{mul_2}ḪUN.GA$_2$
14 2 ŠU.MIN.MEŠ LA$_2$-*ṭi* TA ^{mul_2}ḪUN.GA$_2$ *a-di* ^{mul_2}ALLA *šal-šu$_2$ ša$_2$* ^{giš}BAN$_2$-*šu$_2$*
15 *uḫ-ḫar* ...

150 The owner of Text 2 (VAT 7851) is the son of Nidintu-Anu.

151 The use of KUN here is slightly problematic. Constellations can have tails (*zibbatu*) but generally only when they are derived from animals, i.e. Leo and Socrpio. Another possibility is that this is a writing for the sign Pisces, but it lacks the MUL determinative which is otherwise never omitted in this text. My reading here takes KUN in parallel with *qīti*, as the end of a sign. Its use to signify the end of something is attested in a few select contexts, but not as of yet in astronomical and astrological texts (CAD K 102 *zibbatu* 2).

152 The pair of constellations here parallels the two names used for Taurus in the micro-zodiac.

"From Capricorn until Aries: It will decrease 2 hands.
From Aries until Cancer: it will be one-third of a *sūtu* behind (normal)."

Returning to the Row A section at hand, the faintness of Saturn and Jupiter mentioned directly afterwards may or may not be associated with the appearance of trade. Reading more deeply into Iqīšâ's text we see that surplus is predicted by Jupiter appearing in Taurus, Leo, Sagittarius, Capricorn, Aquarius (obv. 5), and decrease in any other sign (obv. 6). Whereas Saturn predicts surplus from Cancer to Sagittarius, and decrease from Capricorn to Gemini (obv. 6). Putting both of these locations together we see that if Jupiter and Saturn were both located in Aries according to the minor sign they should predict a decrease in business, but the micro-zodiac here associates it with the existence of business. This suggests that SpTU 1, 94 in all of its complexity was not used to lay out the content of this section but rather the vocabulary was shared.[153]

The tablet BM 47494 presents an interesting mix of both constellation-based astrology and zodiacal astrology. Both types of astrological content on this tablet contain references to business:

BM 47494:[154]
obv.
23 *ana* GANBA *ina* ŠA_3 $^{\text{mul}}$AL.LUL $^{\text{mul}}$GIŠ.RIN_2 $^{\text{mul}}$SUḪUR.MAŠ_2 $^{\text{mul}}$AŠ.GANA_2
24 *ana še-im ina* ŠA_3 $^{\text{mul}}$AŠ.GANA_2 $^{\text{mul}}$AB.SIN_2 *u* $^{\text{mul}}$GU.LA

"Concerning business: within the Crab, the Scales, the Goat-Fish, (and) the Field.

153 It could be the case that the two negative protases combine to equal a positive result.

154 I have followed Hunger's transliteration and translation (Hunger 2004) except where I have used readings of signs to match my editions, GANBA for KI.LAM and AS.GANA_2 for AŠ.IKU.

Concerning barley: within the Field, the Scales, and the Great One."

In a later section, this text lists the effect on business of a planet's appearing bright in certain signs. They can be read as zodiacal signs here rather than constellations because they are ordered in triplicities. The fact that they appear as four groups of three naturally suggests the twelve signs of the zodiac. Interestingly, these signs are different from the constellations listed directly above.

BM 47494:
rev.
1 [$^{mul.lu_2}$ḪUN.GA$_2$[155]] ^{mul}UR.GU.LA *u* ^{mul}[PA].⌜BIL⌝.SAG
2 [...] GANBA *ša*$_2$ ⌜KUR URI⌝^{ki}

"[Aries], Leo, [Sag]ittarius,
[concerning] business of Akkad."

The text then goes on to list the effect on business when certain planets are bright presumably in these three signs, all of which are bad. After listing the omens the other three groups of signs arranged in triplicities are listed each with an associated land.

The above excerpt from BM 47494 might refer to the catch-line of a text from Hellenistic Uruk.

TCL 6, 19:
r. 31 ^{mul_2}UR.ḪUN.GA$_2$ KI GANBA ^{lu_2}DAM.GAR$_3$

"Aries is the sign of business and merchant(s)."

This appears as the catch-line at the bottom of TCL 6 19, suggesting that the next tablet in the series was concerned entirely with business and the activities of merchants. TCL 6, 19 was

155 Aries can be restored here because of the signs follow triplicities, in this case [I] V IX.

authored by Anu-aḫ-ušabši a member of the Ekur-zakir family on the 12th day of Abu (V) 84 S.E. (227 BCE).

The two planets that are tentatively linked with trade in this section are Saturn and Jupiter. I can find no parallels in the texts quoted above that make a connection between Saturn and trade. Jupiter, however, is linked to a decrease in trade in TCL 6, 16:

TCL6, 16:
obv. 31 ^{mul}UDU.IDIM *ana* ^{mul}SAG.ME.GAR TE GANBA LA$_2$-*ṭi*

"(If) a planet approaches Jupiter: business will decrease."

Attack of an enemy (ZI KUR$_2$, *tīb nakri*) is not well attested in the astrological corpus.[156] TCL 6, 16 r. 43 gives attack of an enemy for when a planet named Ninurta appears. CTN 4, 13 obv. ii. 10' (EAE 8) gives attack of an enemy for an omen referencing the horns of the moon. Neither of these seems to refer to the brightness of Mars. The planet Mars however has a generally sinister character and portends conflict and warfare.[157] The tablet BM 47494, mentioned above also includes attack of an enemy, but here it is equated with Cancer, Leo, and Scorpio:

BM 47494:
obv. 17 *ana* ZI KUR$_2$ *ina* ŠA$_3$ ^{mul}AL.LUL ^{mul}UR.GU.LA *u* ⌜^{mul}⌝GIR$_2$.TAB

"Concerning 'attack of an enemy': within the Crab, the Lion, and the Scorpion."

156 It is very well attested in the wider omen tradition, *Šumma Ālu*, *Šumma Izbu* and in extispicy texts (CAD T 387 *tību* 2').

157 Koch-Westenholz 1995, 128–129; Reynolds 1998

In the last part of this section of Row A, rain (ŠEG$_3$, *zunnu*)[158] is given for when Mercury is bright. This is a common element of astrological weather prediction from the Neo-Assyrian period onwards.[159] For the late period, the text TCL 6, 19, gives many instances where the appearance of Mercury is equated with rain. However, this presents a slight problem in that our text equates rain with the faintness of Mercury, which is the opposite of what one would expect. In fact TCL 6, 19 provides a simple rubric at the beginning which lays out the operating principles regarding planets and rain:

TCL 6, 19:
obv. 5 KUR$_4$-*ma* ŠEG$_3$ *u* ILLU MAḪ *un-nu-ut i-ṣu*

"(If) it is bright: rain and heavy flood, (if) faint: few (rains or flood)."

In terms of locations within the sky, BM 47494 links rain to specific constellations:

BM 47494:
obv. 28 *ana* ŠEG$_3$ ILLU *ina* ŠA$_3$ ^{mul}KU$_6$ ^{mul}GU.LA *u* MUL.MUL

"Concerning rain, flood: within the Fish, the Great One, and the Stars."

3.4.2 Taurus

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 32517+ (Libra), BM 36292 (Aquarius),

ana ^{d}GU$_4$.U$_4$ RA GU$_3$ ^{d}IŠKUR *ana* ^{d}*ṣal-bat-a-nu* IZI.ŠUB *ri-ba* KI RA UGU GAL.ME ZI TU$_{15}$ GAL *ana* ^{d}GU$_4$: ^{d}*dele-bat* KUR$_4$-*ma*

"For Mercury destruction, thunder; for Mars lightning, earthquake; sign of destruction concerning the great ones, onset of a great wind, for when Mercury or Venus are bright."

158 CAD Z 160 *zunnu*.

159 Koch-Westenholz 1995, 127–128

Commentary:

Thunder (GU$_3$ ^{d}IŠKUR, *rigim Adad*)[160] is well attested in EAE and the wider divinatory tradition.[161] A Neo-Assyrian tablet from Sultan Tepe preserves one omen equating thunder with destruction:

STT 2, 329 (EAE 19):
obv. 6' AN.GE$_6$ GAR-*ma* ^{d}IŠKUR GU$_3$-*šu*$_2$ ŠUB ZAḪ$_2$ KUR *ina* INIM DINGIR.MEŠ DU$_{11}$.GA

(If) an eclipse takes place and Adad thunders (lit: throws down his voice): destruction of the land (when) The gods speak the word.

Additionally, a late copy of EAE 33 from Uruk (SpTU 2, 41) contains many references to thunder. "Destruction by Adad" (RA ^{d}IŠKUR, *riḫiṣ Adad*)[162] is also attested in the astrological corpus; the sense must refer to a destructive storm. TCL 6, 20 equates it with a heavy flood:

TCL 6, 20:
rev. 9 [*ma-la*] SUMUN RA ^{d}IŠKUR *en-na* RA ^{d}IŠKUR ILLU *git-pu-šu-ma ta-qab-bi*

[As many] storms (were) in the past, (there are as many) storms now, you will predict a massive flood.

I assume that in this section of Row A, both RA ^{d}IŠKUR and GU$_3$ ^{d}IŠKUR are being conflated in to "RA GU$_3$ ^{d}IŠKUR", through hendiadys, i.e. "destructive thunder of Adad". Likewise, they are both associated with Mercury due to the planet's connection with rain mentioned above. A further link is found in *iqqur īpuš* §103 where a flood in Ayyaru (II) is connected with RA ^{d}IŠKUR.

160 CAD R 332 *rigmu* 4.

161 Schwemer in his *Wettergotsestalten* notes that thunder was also associated with the kettledrum (Schwemer 2001, 665). The kettledrum, its covering ritual, and the use of the instrument in rituals in Hellenistic Uruk and Babylon was covered by Linssen (Linssen 2004, 92–100).

162 CAD R 335 *riḫṣu* A.

A comparison with the "thunder" tablets of EAE (44, 45, and 46)[163] produces no meaningful correlation with the meteorological phenomena and the planet Mercury found in this section of Row A.

Lightning (IZI.ŠUB, *izišubbu*)[164] similarly appears in EAE 47.[165] However, there is no extant corelation with the planet Mars. Lightning is also mentioned the enigmatic text, TCL 6, 11, edited by Hunger and Brack-Bernsen.[166] The text is a mix of astronomical procedures for intercalation and astrological sections. It was owned by Nidintu-Anu (Hunzu) and written by his son Anu-uballiṭ. Lines 6-8 mention lightning during certain months and when the Stars ($MUL_2.MUL_2$) are above a planet. The connection here is made between the Stars and Taurus. Also of interest is the fact that this section preserves the equivalences between many of the zodiacal constellations and their equivalent months.

TCL 6, 11:
obv.

6. *ša*$_2$ GU_5 $MUL_2.MUL_2$ *ša*$_2$ SIG $^{mul_2}UG_5$.GA.MEŠ *ša*$_2$ ŠU *šu-ku-du ša*$_2$ NE ^{mul_2}MAR.GID_2.DA *ša*$_2$ KIN ^{mul_2}*a-ru*$_6$ *ša*$_2$ DU_6 ^{mul_2}UR.GI_7
7. *ša*$_2$ APIN $^{mul_2}GIR_2$.TAB *ša*$_2$ GAN $^{mul_2}MA_2.GUR_8$ *ša*$_2$ AB AN *ša*$_2$ ZIZ_2 *ḫar-ri-ri ša*$_2$ ŠE AŠ.$GANA_2$ *an-nu-u*$_2$ $MUL_2.MUL_2$ *ša*$_2$ ITI.MEŠ *gab-bi* IZI.ŠUB
8. ME-*a* GAR-*an šum*$_4$*-ma* $MUL_2.MUL_2$ *e-la-nu* ^{d}UDU.IDIM IZI.ŠUB RA *šum*$_4$*-ma* KI.TA *i-ṣa*

"Of Ayyaru (Month II) the Stars. Of Simānu (Month III) the Raven. Of Dûzu (Month IV) the Arrow. Of Abu (Month V) the Wagon. Of Ulūlu (Month VI) the Eagle. Of Tašrītu (Month VII) the Dog.

163 Gehlken 2012, 11–162

164 CAD I/J 319 *izišubbu*.

165 Gehlken 2012, 163–198

166 Hunger and Brack-Bernsen 2002

Of Araḫsamna (Month VIII) the Scorpion. Of Kislīmu (Month IX) the Barge. Of Ṭebētu (Month X) Mars. Of Šabāṭu (Month XI) the Vole. Of Addaru (Month XII) the Field. These, the Stars of all the months (mean) lightning.
You make a prediction: If the stars are above the planet, stroke of lightning (and) devastation, if below, it will be minor."[167]

The "Great Ones", GAL.ME, are rarely mentioned in omen apodoses. They are included once in TCL 6, 2, a liver omen text.

TCL 6, 2:
obv. 22 BE ZE$_2$ *ina* ⌜MURUB$_4$⌝-*ša*$_2$ AN.TA *dak-šat ša*$_2$ NUN UGU GAL.MEŠ INIM.MEŠ-*šu*$_2$ GIG.MEŠ-*ṣa*

"If the gall bladder is swollen up towards the middle: the words of the prince will displease the great ones."

Onset of a great wind (ZI TU$_{15}$ GAL, *tīb šāri rabî*) is not attested in the divinatory corpus, the adjective used to describe the a powerful rising wind is generally *dannu*, "strong".[168] We might expect to have some mention on a great wind on EAE 49[169], which is very poorly preserved. However, BM 47494 does assign "rising wind" to eight constellations, including the Pleiades which might result in an equivalency with the sign Taurus.

BM 47494:
obv. 29 *ana* ZI TU$_{15}$ *ina* ŠA$_3$ ^{mul}MAŠ.MAŠ ^{mul}PA.⌜BIL⌝.[SAG ^{mul}AL].⌜LUL⌝ ^{mul}UR.GU.LA
obv. 30 ^{mul}⌜SIM.MAḪ⌝ ^{mul}*a-nun-ni-tu*$_4$ MUL.MUL [*u*] $^{mul.lu_2}$ḪUN.GA$_2$

"Concerning rising wind: within the Twins, Pabil[sag, the Cr]ab, the Lion, the Swallow, Anunitu, the Stars, [and] the Hired Man."

3.4.3 Gemini

167 CAD I/J 220 *īṣu* 2.

168 CAD T 389 *tību* 3a, 1'.

169 Gehlken 2012, 199–209

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 32517+ (Libra), BM 36292 (Aquarius)

KI GANBA SUM.SIKIL ŠE.BAR.RA *ri-ba* IZI.ŠUB ḪI.GAR KI GISKIM *u* EŠ.BAR KI *ri-ba dan-nu* SU.GU$_7$ *dan-nu* GURUN DU$_3$.A.BI

"Sign of trade of onions (and) barley, earthquake, lightning, rebellion; sign of a (divinatory) sign and decision; sign of strong earthquake, strong famine, fruit, all of it."

Commentary:

It is interesting that this cell lacks a planetary association, Cancer is the only other sign without any planets. The omission here must mean that the locations of planets is not the only driving factor for the apodoses mentioned in these cells. One easy solution is to assign these apodoses to when the moon is in this sign within the zodiac. In that case, the planetary data from the other cells would modify an underlying lunar basis for interpretation in this row.

The discussion of the translation of SUM.SIKIL, "onions" can be found under Aries above, likewise, for evidence of trade. Of note, is the fact that Gemini, or the Twins, do not appear in the first section of BM 47494 concerning business, however the Great Twins do appear at the end of the second section on business when the triplicities are assigned to different lands. In this case the Great Twins are assigned to the west, MAR.TU^{ki}.[170]

The text TCL 6, 16 does make mention of the third month, Simānu, in relation to business, which serves as a parallel for the third zodiacal sign, Cancer:

TCL 6, 16:
obv. 14 *ina* ^{iti}SIG$_4$ ^{mul}UDU.IDIM KUR-*ḫa* KUR GANBA LA$_2$-*a* GU$_7$

170 BM 47494 rev. 19-20.

(If) in Simanu (III) a planet rises: the land will *experience*[171] reduced business.

While this section does not specify what the effect on business will be, it is tempting to assume it will be negative both on the evidence offered by the quote directly above, and also the fact that the majority of apodoses in Row A seem to be negative in character.

EAE 22 part II[172] and the later part of EAE 47[173] are concerned with earthquakes, *rību*. It is interesting that both of these tablets of EAE dealing with Sîn and Adad respectively included very similar earthquake omens, which themselves are closely linked with *iqqur īpuš* §100-101. It seems as if the two sections of earthquake omens were related and might have come into EAE from a common source.[174]

While there is no parallel for this section on EAE 22, a few of the omens suggest that the elements which make up the cell of the micro-zodiac were often associated with each other. The omen dealing with an eclipse in Simānu (III) includes both a decrease in barley, earthquake, and dissatisfaction with the king. There is a slight issues with the fact that the earthquake mentioned on EAE 22 is used as a protasis rather than as an apodosis as in this section of Row A.

EAE 22 part II[175]:

171 The sense of GU_7 is clear here, however an obvious translation is not evident.

172 Rochberg-Halton 1988b, 262–270

173 Gehlken 2012, 150–160

174 Gehlken 2012, 128

175 Rochberg-Halton 1988b, 251–272

1 DIŠ *ina* ^{iti}SIG$_4$ TA UD.1.KAM EN UD.30.KAM AN.TA.LU$_3$ *it-tab-ši* EBUR KUR NU SI.SA$_2$
2 BE ^{d}IŠKUR GU$_3$-*šu$_2$* ŠUB ŠE GU-*um ina* KISLAḪ.MEŠ TUR *a-ru-ur-tu$_4$*
3 BE *ri-i-bu i-ru-ub* LUGAL *še-eṭ* KI IDIM.MEŠ-*šu$_2$ i-qal-lil*
4 BE IM.GU$_2$ KUR *is-hup$_2$* MU.3.KAM LUGAL KUR *ina di-ib-ri* DU.ME$^{?}$

"If an eclipse occurs in Simānu (III) from the 1st to the 30th day: The crops of the land will not be well.
If Adad thunders: The barley and flax on the threshing floor will decrease, famine.
If there is an earthquake: The king is despised, he will be belittled in the eyes of his courtiers.
If mud covers the land: For three years the king of the land will experience hardship."

iqqur īpuš also contains two sections on earthquakes, §100 and §101. The section for Simānu (III) in §100 equates an earthquake in that month with the cessation of rain, which might be connected to the famine mentioned in this cell in Row A.[176]

Famine (SU.GU$_7$, *ḫušaḫḫu*)[177] is a common element of omen apodoses. It also features in celestial divination; two references to eclipses and famine can be found in STT II 329.[178] Famine appears later in SpTU 1, 94, associated with the faintness of planets during an eclipse. It also appears in a later section concerning the location of Jupiter in the zodiac.

SpTU 1, 94:
rev.
9 TA *qi$_2$-ti* ^{mul_2}GU$_4$.AN.NA EN ^{mul_2}SIPA.ZI.AN.NA ^{mul_2}MAŠ.TAB.BA GAL.GAL
10 *u* ^{mul_2}ALLA SU.GU$_7$ *dan-nu* GAL$_2$-*ši*

"From the end of the Bull of Heaven to Orion, the Great Twins, and Cancer: There will be strong hunger."

176 Labat 1965, 188–191

177 CAD Ḫ 260 *ḫušaḫḫu* 1a.

178 STT II 329, obv. 5', and obv. 8'.

"Fruit, all of it", GURUN DU_3.A.BI, is a puzzling addition to this cell. It appears twice as a direct quotation in TCL 6, 41. The text contains the instructions for nocturnal rituals over two days during an unknown month (maybe Ṭebētu (X)).[179] In both cases it is followed by the verb *šarāḫu* in the D-stem, "to make splendid".[180] The two sections of this text give instructions for the setting up of an offering table, the first before Anu and Antu, and the second before the seven celestial bodies.

Perhaps a closer connection, if not totally secure, is from the astrological text SpTU 2, 41, which contains a number of omens related to thunder, perhaps identifying it with tablet 33 of EAE. The lower part of the reverse is damaged but the end of one line might offer a parallel to for the reference to fruit from this cell.

SpTU 2, 41:
rev. 24 ... NIM.GIR_2 GAR GIM IZI *ana* TU_{15} 4-BA *iz-nun* GURUN $^{giš}KIRI_6$ ⌜x x x⌝ [...]

"... lightning occurs like fire, it rains to the four winds, fruit of the orchard ..."

The traces on the copy are not clear but do not entirely rule out a reading of DU_3.A.BI, which would connect the lightning from earlier in this cell to the fruit, presumably indicating a bad omen for fruit harvests.

3.4.4 Cancer

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 32517+ (Libra), BM 41583 (Libra), BM 36292 (Aquarius), BM 41041

179 Linssen 2004, 122–124

180 This construction is also quoted in the appendix section on the obverse of Text 7 (VAT 7847+) below the micro-zodiac text.

KI ŠEG$_3$ ZI TU$_{15}$ LA$_2$-*al še-im* EŠ.BAR *i$_2$-dig-lat u pu-rat sip-par*^{ki} LARSA^{ki} ^{d}ID$_2$ ID$_2$ ^{d}NIN.GIR$_2$.SU UR.SAG ^{d}*nin-urta*

"Sign of rain, onset of wind, scarcity of grain, decision of the Tigris and Euphrates, Sippar, Larsa, the divine river, the river of Ningirsu, the hero Ninurta."

Commentary:

There is an intriguing reference to Cancer at the start of TCL 6, 20 perhaps in reference to rain, although the lines are very damaged. The text seems to be giving instructions for predicting rain according to the zodiacal signs, rather than TCL 6, 19 which relates rain to the appearance of planets in constellations.

Onset of wind (ZI TU$_{15}$, *tīb šāri*) is attested for the Crab on BM 47494, as mentioned above under the section for Taurus. Scarcity of grain, LA$_2$-*al še-im*, is not directly paralleled on any of the Late Babylonian astrological texts. However, LA$_2$-*al* (*šaqal*) for "scarcity" is attested in the astrological corpus in reference to rain.[181] It is also used for a decrease in barley and sesame is found on EAE 8 preserved on a tablet from Nimrud.

CTN 4, 4:
obv. i. 16 : 30 *ina* IGI.[LA$_2$]-⌜*šu$_2$* 2 TUR$_3$⌝ [...] x ŠE *u* ŠE.GIŠ.I$_3$ LA$_2$

"If the moon at its appearance (has?) two haloes: ... barley and sesame will decrease."

A decision (EŠ.BAR, *purussû*)[182] is a common apodosis of celestial divination. Here it is associated here with a list of toponyms, the toponyms themselves are paralleled on a few texts.

BM 47494:
obv. 6 DIŠ ⌜^{mul_2}ALLA⌝ UD.KIB.NUN^{ki} *dil-bat*^{ki} *u gir$_2$-su*^{ki} MURUB$_4$.MEŠ UD.KIB.NUN^{ki} IGI.MEŠ

181 CAD Š/II 9 *šaqālu* 6 and 15 *šaqlu*.

182 CAD P 529 *purussû* 3 a 2'.

MIN MIN

"The Crab: Sippar, Dilbat and Girsu; the middle(s): Sippar, the front(s): ditto, ditto"

Two texts give more associations between these toponyms and the Crab, or Cancer. MNB 1849 includes a section at the end of the tablet which records which cities are affected by an eclipse in different constellations. This section was first edited by Weidner in his article on astral geography.[183] Parallels to this text were recently discussed by Steele.[184]

MNB 1849:
rev.

47 DIŠ *ina* KI MUL.MEŠ IGI.MEŠ *ša*$_2$ ^{mul}AL.LUL *a-dir* EŠ.BAR ^{id_2}IDIGNA *i*$_3$*-dig-lat mil*$_2$*-ša*$_2$ LA$_2$*-ti*

48 DIŠ *ina* KI MUL.MEŠ EGIR.MEŠ *ša*$_2$ ^{mul}AL.LUL *a-dir* EŠ.BAR ^{id_2}*pu-rat-tu*$_4$ ^{id_2}*pu-rat-tu*$_4$ *mil*$_2$*-ša*$_2$ LA$_2$*-ti*

49 DIŠ *ina* ⌜KI⌝ ⌜^{mul}⌝AL.LUL *a-dir* EŠ.BAR UD.KIB.NUN^{ki}

"If it is eclipsed in the place of the front stars of the Crab: it a decision for the Tigris: the flood of the Tigris will decrease.
If it is eclipsed in the place of the rear stars of the Crab: it is a decision for the Euphrates: the flood of the Euphrates will decrease.
If it is eclipsed in the place of the Crab: it is a decision for Sippar."[185]

These three lines contain all but one of the toponyms mentioned in this cell, Larsa. This text and the previously excerpted text, BM 47494, have lines which do pair Sippar and Larsa but in both cases they refer to the constellation Orion.

183 Weidner 1963, 118–119

184 Steele 2015b, 208–215

185 Line 51 of this text associates Pisces (^{mul}SIM.MAḪ) with the Euphrates and the sea. I wonder if both Cancer and Pisces are associated with the rivers and sea because of their connection with water, i.e. that crabs and fish live in water.

Finally, one text BM 36303+ edited by Steele, makes the connection between Cancer and Larsa.[186]

BM 36303+:
obv. 21' ⌜DIŠ⌝ [*ina*] ⌜iti⌝ŠE ^{mul_2}⌜AL.LUL UD⌝.UNUG^{ki}

"[In] Addaru (XII), Cancer, Larsa"

The divine river, $^{d}ID_2$, is mention in column ii line 27 of the Weidner god-list.[187] Unfortunately, the equivalent god name is broken off.

An association between the river of Ningirsu and the Crab can be found on SpTU 3, 101 which records various EAE type omens.

SpTU 3, 101:
obv. 5' ^{mul}AL.LUL ID$_2$ ^{d}NIN.GIR$_2$.SU ^{mul}*ṣal-bat-a-nu* [...]

"The Crab, river of Ningirsu, Mars ..."

The final part of the section of Row A is very similar to parts of Row B. The Taurus section of Row B preserves this exact epithet for Ninurta, which can be found in MUL.APIN I ii. 6. Curiously, this section of Row A has no reference to Ninurta.

3.4.5 Leo

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 41583 (Libra), BM 41041

KI NIG$_2$.E$_3$ IZI.ŠUB *u* ZI KUR$_2$: KI *um-šu$_2$ u* U$_4$.DA ^{d}*ṣal-bat-a-nu ana* ^{mul_2}BABBAR NIG$_2$.E$_3$ 3,20 ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ *dan-nu* EREN$_2$ GAL KUR$_4$-*ma*

186 Steele 2015a

187 Weidner 1924, 15

"Sign of victory, lightning, and attack of the enemy, or, sign of summer and light, (for) Mars; for Jupiter, victory of the king, (for) Mars, attack of the strong enemy, great troops, (when) it is bright."

Commentary:

Victory ($NIG_2.E_3$, *lītu*)[188] is linked to the constellation the Lion, in MUL.APIN II.

MUL.APIN II:[189]
iii. 30 DIŠ ^{mul_4}UR.MAḪ MUL_4.MEŠ-*šu*$_2$ *il-tap-pu-u* 3,20 KI DU $NIG_2.E_3$ ...

"If the stars of the Lion flares[190] : the king will be victorious wherever he goes."

While this excerpt clearly shows a relationship between the Lion star and victory for the king, it is in direct contrast to the following two apodoses, lightning, and attack of the enemy, both of which are negative.

Jupiter is connected to the well-being of the king.[191] This is directly followed by an attack of the enemy related to Mars, which makes sense given the hostile nature of that planet.

3.4.6 Virgo

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 41583 (Libra)

KI $SI.SA_2$ $BURU_{14}$ *na-pa-aš*$_2$ ^{d}NISABA SILIM.ME ^{munus}$PEŠ_4$.ME KI SUM.SIKIL ŠE.BAR.RA GANBA KI EŠ.BAR KUR ELAM.MA^{ki} KI AN.TA.LU_3 *ana* ^{d}*dele-bat u* ^{d}$GU_4.U_4$-*ma*

"Sign of good harvest, abundant grain, well-being for pregnant women; sign of onion[192] (and) barley trade; sign of a decision of the land of Elam; sign of an eclipse for Venus and Mercury."

188 CAD L 221 *lītu*.

189 Hunger and Pingree 1989, 112

190 The translation of *iltappu* was initially source of trouble for Hunger and Pingree in their edition (Hunger and Pingree 1989, 134). However, the CAD provides concrete evidence for a translation of *šapû* as "to flare or flicker" (CAD Š/I 489 *šapû* 2'c).

191 Koch-Westenholz 1995, 121

Commentary:

A good harvest (SI.SA$_2$ BURU$_{14}$, *ešēr ebūri*)[193] is a common element in divinatory apodoses. From the Neo-Assyrian into the Hellenistic period, a good harvest appears in multiple types of divinatory texts.[194] It is mentioned on the second tablet of MUL.APIN, in reference to the flaring of the Yoke star.

MUL.APIN II:[195]

iv 1 DIŠ ^{mul}ŠUDUN *ina* E$_3$-*šu$_2$* GIM IZI *it-ta-na-an-paḫ* BURU$_{14}$ SI.SA$_2$

"If the Yoke keeps flaring up like fire when it comes out: the harvest will go well."

While the Yoke star is certainly not the zodiacal sign Virgo in this case, it is close by in the sky and perhaps the meaning transferred to the zodiacal sign. TCL 6, 16 obv. 13, also makes mention of a good harvest, but in that case the harvest is linked to a planet rising in Nisannu (I). Harvest is mentioned on BM 47494 as well, in connection with the Great One, the Furrow, the Field, and the Tails (obv. 21). The Furrow is closely connected to the zodiacal sign Virgo.

Abundance of grain, *napaš* ^{d}NISABA,[196] is a common apodosis which can be traced from the Neo-Assyrian period into the Late Babylonian divinatory corpus. A copy of *iqqur īpuš,*

192 See the previous mentions in Aries and Gemini for this translation.

193 CAD E 18 *ebūru* 2 b 2'.

194 CT 39 18, *Šumma Ālu* tablet 61, contains this exact apodosis for the month of Tašrītu (VII).

85. DIŠ *ina* ^{iti}DU$_6$ KI.MIN BURU$_{14}$ SI.SA$_2$ *na-pa-aš* ^{d}⌜NISABA⌝

"If in Tašrītu (VII) ditto (flood comes): good harvest, abundant grain."

195 Hunger and Pingree 1989, 119

196 CAD N/1 318 *napšu* b.

from Nimrud (CTN 4, 52, obv. ii' 15'-16'), includes a mention of abundance of grain in Araḫsamnu (VIII).

Well-being of pregnant women (SILIM.ME ^{munus}PEŠ$_4$.ME, *šulum erâti*)[197] is a rare apodosis. Generally a positive outcome for pregnancy is described as "going well" (SI.SA$_2$, *ešēru*).[198] BM 47494 makes mention of women giving birth, but connects it with four different constellations, the Scorpion, the Goat-fish, a missing name, and the Annunitu (obv. 21).

The mention of onion and barley trade in the middle of the section is odd here, as in the other two signs where trade appears it is placed as the first element of this section. The syntax is also the reverse of the previous two mentions of trade (Aries and Gemini). The text TCL 6, 16 associates the sixth month with positive trade.

TCL 6, 16:
obv. 15 *ina* ^{iti}KIN ^{mul}UDU.IDIM KUR-*ḫa* E$_{11}$ GANBA *na-pa-aš$_2$* ^{d}NISABA

(If) in Ululu (VI) a planet rises: rise in business, abundance of grain.

As for a sign of decision for Elam, EŠ.BAR KUR ELAM.MA^{ki}, BM 47494 offers excellent evidence linking Virgo with Elam. The reverse of the tablet assigns three signs to Akkad as we saw above. After outlining omens relevant to Akkad, the text then summarizes for the other three lands, Elam, Westland, and Subartu.[199]

BM 47494:

197 CAD E 310 *erītu* a.

198 CAD E 354 *ešēru* 2c.

199 These associations follow the section in the Great Star List which assigns the months of the year to the four locations (Koch-Westenholz 1995, 202–203).

rev.

17 DIŠ ^{mul}GU$_4$.AN.NA ^{mul}AB.SIN$_2$ *u* ⌜^{mul}⌝[SUḪUR.MAŠ$_2$]

18 3 KI.MEŠ *a*-⌜*na*⌝ [KUR] ⌜ELAM$^{?}$⌝.[MA^{ki}]

"¶ Taurus, Virgo, and [Capricorn]
3 areas for Elam."

The use of KI here suggests that the entire "area" of the sign was relevant for Elam, which necessitates a reading of these constellations as zodiacal signs. BM 47494 also makes the association more explicit earlier in the text with a line that just lists the Furrow and Elam (obv. 8).

The older writing of eclipse here, AN.TA.LU$_3$ instead of AN.GE$_6$, is puzzling as is the meaning behind its association with Venus and Mercury.

3.4.7 Libra

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Virgo),

KI EŠ.BAR GANBA DU$_3$.A.BI KA NU GI A.RA$_2$ NU SI.SA$_2$ ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma* ^{d}SAG.UŠ KUR$_4$-*ma*

"Sign of a decision on all trade, untrue speech, advice will not go well, (for when) Jupiter is faint, and (when) Mars is bright, and (when) Saturn is bright."

Commentary:

The mention of trade here is different than the previous references in Aries, Gemini, and Virgo, in that it lacks a object of trade (in the other cases onions, and barley). The Scales are one of the four constellations associated with trade in line 23 on the obverse of BM 47494 (see above under Aries). Both untrue speech (KA NU GI, *pû lā kīnu*)[200] and advice not going well

200 CAD P 460 *pû* b' w/ *kīnu*.

(A.RA$_2$ NU SI.SA$_2$, *alaktu ul iššer*)[201] are associated with the faintness of Jupiter because that planet is associated with bearing signs or omens for the world. A copy of the *akītu* ritual from Hellenistic Babylon includes a characterization of the planets, some of which match the contents from this section of Row A.

RAcc., 127-154 (DT 15, DT 109):[202]

305 ^{mul}BABBAR *na-aš$_2$ ṣa-ad-du ana* DU$_3$.DU$_3$.A UMUN.MU UMUN.MU ḪUN
306 ^{mul}GU$_4$.U$_4$ *mu-ša$_2$-az-nin* šeg$_3$ UMUN.MU UMUN.MU ḪUN
307 ^{mul}GENNA MUL *kit-tu$_2$ u mi-šar* UMUN.MU UMUN.MU ḪUN
308 ^{mul}AN ^{d}GIBIL$_6$ *ez-zu* UMUN.MU UMUN.MU ḪUN

"Jupiter, bears the signs for all (the world), my lord, my lord, be calm.
Mercury, brings rain, my lord, my lord, be calm.
Saturn, star of truth and justice, my lord, my lord, be calm.
Mars, the angry fire god, my lord, my lord, be calm."

For our purposes, the characterizations of Jupiter and Mars here are certainly similar to this section of Row A. However, it does not make sense that Saturn as the star of truth and justice should predict untrue speech, and bad advice, when it is bright.

3.4.8 Scorpio

Attested on: BM 42288+ (Aries), VAT 7847+ (Leo), VAT 7847+ (Virgo),

KI *ri-ba* ZI KUR$_2$ IZI.ŠUB *u* ^{im}GU$_2$ ^{d}GU$_4$.U$_4$ KUR$_4$-*ma* ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma* MUNUS.KUR$_2$.ME GAL$_2$.ME

"Sign of earthquake, attack of an enemy, lightning and mud, (for when) Mercury is bright; (for when) Jupiter is faint, (for when) Mars is bright existence of hostilities."

201 CAD A/1 297 *alaktu* 2a.

202 Originally published by Thureau-Dangin in *Rituels Accadiens* (Thureau-Dangin 1921, 127–154). It has since been re-edited in a composite edition by Linssen (Linssen 2004, 215–237).

Commentary:

The entry for Tašrītu (VII) in *iqqur īpuš* §100 lists revolt (ḪI.GAR, *bārtu*)[203] as an outcome of an earthquake during this month. Presumably lightning (IZI.ŠUB, *izišubbu*) and mud ($^{im}GU_2$, *qadūtu*)[204] are connected with Mercury because of that planet's association with storms and rain (see above under Libra). Mud is further associated with enemy hostilities in *iqqur īpuš* for the month of Tašrītu (§102).

The association between Mars and hostilities (MUNUS.KUR.ME, *nukurtu*)[205] makes sense given the negative associations with the red planet.[206]

We might have expected a reference to business judging from the association between Scorpio and business on EAE 50.

Text I (K. 2202):[207]
obv. 13' $^{mul}GIR_2$.TAB *ana* GANBA

"Scoprio (is) for business."

3.4.9 Sagittarius

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), VAT 7847+ (Leo), VAT 7847+ (Virgo)

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203 CAD B 114 *bartu* a.

204 CAD Q 53 *qadūtu* 1a.

205 CAD N/II 330 *nukurtu* 4'.

206 Reynolds cataloged the various negative associations given to the planet Mars in the lexical tradition (Reynolds 1998). The names include associations with fire, disease, predatory animals, enemies and other negative portents.

207 Reiner and Pingree 1975, 2:36

KI IZI.ŠUB *qi$_2$-mi-tu$_2$ u* GU$_3$ ^{d}IŠKUR ŠEŠ.ME *ana* ^{d}*dele-bat u* ^{d}GU$_4$ *ana* ^{mul_2}BABBAR *ki-ma* KUR$_4$*-ma* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ KUR$_4$*-ma*

"Sign of lightning, burning and thunder are paired, for Venus and Mercury, for (when) Jupiter is bright, and (for) Mars attack of an enemy, (when) it is bright."

Commentary:

TCL 6, 19 includes a section which pairs (ŠEŠ.MEŠ, *šutāḫû*)[208] winds and rain, though not lightning, burning or thunder.

TCL 6 19:
obv. 23 TU$_{15}$.MEŠ ŠEG$_3$ ŠEŠ.MEŠ*-ma*

"Wind and rain are paired ..."

As before, Mercury is often associated with stormy weather, and likewise Venus with rain, which makes their association here with lightning, burning,[209] and thunder somewhat logical. In the same vein, an attack of an enemy is in character with the planet Mars.

3.4.10 Capricorn

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), VAT 7847+ (Leo), VAT 7847+ (Virgo)

KI ŠEG$_3$ *u* ILLU *ana* ^{d}*dele-bat u* ^{d}GU$_4$.U$_4$ *ana* ^{d}*ṣal-bat-a-nu u* ^{d}SAG.UŠ ŠEG$_3$ *u* ILLU KU$_5$ KUR *ma-la-a* IL$_2$ *na-zaq* KUR DU$_3$.A.BI

"Sign of rain and flood, for Venus and Mercury; for Mars and Saturn, rain and flood will be cut off, the land will bear matted hair, worry (for) the whole land."

Commentary:

208 CAD Š/III 395 *šutāḫû* c.

209 The only known divinatory context for the appearance of this word is here in the micro-zodiac. Otherwise it is only attested in Neo-Assyrian royal inscriptions (CAD Q 252 *qimītu*).

As with the previous section the association of rain and flood with the planets Venus and Mercury is true to their character in the astrological literature. The cutting off of the rain and flood is probably an example of an inverse logical relationship, i.e. the first half of the cell is good, the later half bad.

Bearing matted hair, *malâ našû*,[210] is a sign of mourning dating as far back as an Old-Babylonian *šumma izbu* tablet (YOS 10 56, i. 54). It can be found on a Late Babylonian copy of *šumma izbu*.

SpTU 3, 91:
obv. 3 [BE] U_8 UR.MAḪ U_3.TU-*ma ma-li-*⌜*i*⌝ [*ma*]-⌜*li*⌝-*i* KUR *ma-la-a* ⌜IL_2⌝-[*ši*]

"If a ewe gives birth to a lion and it is cove[red] in matted hair: the land will be[ar] matted hair."

3.4.11 Aquarius

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 36292 (Aquarius),

E *u* PA_5 NU SI.ME ^{d}*ṣal-bat-a-nu* KUR_4-*ma* ^{še}GIG *u* ^{še}IMGAGA *ina* KUR $ZAḪ_2$ *ana* ^{d}SAG.UŠ *ana* ^{d}*dele-bat* $^{d}GU_4.U_4$ *u* ^{mul_2}BABBAR $SI.SA_2$.ME

"Dike and ditch will not be in order, (for when) Mars is bright; wheat and emmer will perish in the land, for Saturn, for Venus, (for) Mercury and Jupiter they will go well."

Commentary:

210 Evidence for matted hair being associated with mourning comes from both the divinatory tradition and mythology (CAD M/I 174 *malû*).

I can find no mention of dike (E, *iku*)[211] and ditch (PA_5, *atappu* or *palgu*)[212] in the divinatory corpus as an apodosis. However, dike and ditch, appear frequently in the ritual and incantation corpus where they serve as boundaries across which a client or evil force should not cross.[213] In a Late Babylonian copy of *šurpu* they are used as pair relating to a specific curse.

SpTU 2, 15:
rev. i. 4 ⌜KI⌝ *ma-mit* *i-ki pal-gu ti-tur-ru me-te-⌜qu⌝* [...]

"With the curse (relating to): dike, ditch, bridge, passage, [...]"

The later half of this cell must refer to the wheat and emmer mentioned earlier. This section would then contain a similar inversion as in Capricorn where a negative portent is given for two planets, and then the reverse (positive) for two other planets. This is the only context within Row A where $SI.SA_2$ is written in the plural, suggesting that its subject must be the crops.[214]

3.4.12 Pisces

Attested on: BM 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 36292 (Aquarius),

KI $PIŠ_{10}$ $SI.SA_2$ $BURU_{14}$ *na-pa-aš*$_2$ ^{d}NISABA $SI.SA_2$ ^{giš}ŠE.GIŠ.I_3 ZU_2.LUM.MA *ka-si-i ana* ^{d}*dele-bat u* $^{d}GU_4$ *ana* ^{d}*ṣal-bat-a-nu u* ^{d}SAG.UŠ NU KUR_4.ME ^{mul_2}BABBAR SIG.SIG-*ma*

"Sign of riverbank, proper harvest, abundant grain, proper (harvest for) sesame, dates,

211 CAD I/J 66 *iku*.

212 CAD A/II 483 *atappu* and CAD P 62 *palgu*.

213 CAD I/J 67 *iku*, 1a.

214 CAD E 354 *ešēru* 2a for $SI.SA_2$.MEŠ used with crops.

mustard[215], for Venus and Mercury, for (when) Mars and Saturn are not bright, and (for when) Jupiter is faint."

Commentary:

Riverbank (PIŠ$_{10}$, *kibru*)[216] is attested in the divinatory tradition, however its association here is more likely to do with overall sense of fertility and harvest present in this section of Row A. The three crops mentioned in this section are half of the standard list contained in the astronomical diaries, although they appear out of order here.[217] The long list of beneficial items related to fertility and harvest fit very well with the conceptions of both Mercury and Venus in the astrological corpus.

3.6 Row B: Composite Edition and Commentary

Description:

The content of Row B is concerned with cultic matters during specific days. Each cell begins with *ūm* "day of". This is then followed by either name of the *pīt bābi* cemermony, "opening of the gate", and/or a sequence of gods and their epithets. The assignment of certain gods to certain days resembles texts like the Offering Bread hemerology, *inbu bēl arḫi,* and the Prostration hemerology,[218] however no direct parallels can be made between these texts and the micro-zodiac. As with Row A, the fact that the micro-zodiac contains only twelve entries for

215 The identification of *kasû* with mustard is a matter of historical tradition. Slotsky notes that the identification of this plant has changed over the years, and the most recent firm identification as cuscuta has not been taken up in the publication of the diaries (Slotsky 1997, 31–32).

216 CAD K 334 *kibru.*

217 Slotsky 1997, 23

218 Livingstone 2013

this row presents some conceptual issues in tying the content to specific dates. The source texts from which this content must have drawn is generally organized according to the ideal calendar. Yet, the position of the minor signs edited below changes on each of the micro-zodiac tables, such that an association with a particular month for one cell might not hold for the next iteration of that cell on the subsequent Major sign table, where it has now shifted its position to slightly earlier in the Major sign.

Composite Text:

3.5.1 Aries

Attested on: BM 34572+ (Gemini), BM 34572+ (Cancer), W 22554/7 (Gemini), W 22554/7 (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo)

u$_4$-*um* BAD KA$_2$ EN GAL-*u* ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta*

"Day of opening of the gate, the great lord Marduk and the hero Ninurta."

3.5.2 Taurus

Attested on: BM 34572+ (Gemini), BM 34572+ (Cancer), W 22554/7 (Gemini), W 22554/7 (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo)

u$_4$-*um* DINGIR IRI UR.SAG GAL-*u* ^{d}*nin-urta* BAD KA$_2$

"The day of the city god, the great hero Ninurta, opening of the gate."

Commentary:

Ninurta is given this epithet in MUL.APIN, where he is associated the Arrow-star.

MUL.APIN I:[219]

ii. 6 DIŠ ^{mul}KAK.SI.SA$_2$ *šil-ta-ḫu* UR.SAG GAL-*u*$_2$ ^{d}*nin-urta*

"The Arrow, the arrow of the great warrior Ninurta."

3.5.3 Gemini

Attested on: BM 34572+ (Cancer), W 22554/7 (Cancer), VAT 7847+ (Leo), BM 33535 (Sagittarius)

u$_4$*-um* DINGIR IRI BAD KA$_2$ *ma-a-šu*$_2$ ^{d}30 ^{d}UTU ^{d}U.GUR EZEN MAŠ.MAŠ

"Day of the city god, opening of the gate, the twins, Sin, Šamaš, festival of the twins."

Commentary:

The twins here, judging from the syntax, are probably Sin and Šamaš,[220] which is attested in only one other text from Hellenistic Uruk, BRM 4, 7.[221]

rev. 7(34) DINGIR.MEŠ *ki-lal-la-an* ^{d}30 *u* ^{d}UTU *ina* IGI.DU$_8$.AM$_3$*-šu*$_2$*-nu lik-ru-bu-ka*

"May both the gods Sîn and Šamaš bless you on their appearance."

Interestingly, in BRM 4, 7 *kilallān* is used instead of *māšu,* and *kilallān* can refer to pairs of objects, including pairs of temples and gods (CAD K *kilallān* b' and f').[222] The use of *kilallān*

219 Hunger and Pingree 1989, 32

220 *māšu* when used with gods usually refers to the pair Lugalgirra and Meslamtaea (CAD M/1 402 *māšu* 1c).

221 Linssen 2004, 209–214

222 Tallqvist includes *ilāni kilallān* as an epithet for both Sîn and Šamaš in his Götterepitheta (Tallqvist 1938, 445, 454).

occurs earlier as well, a Neo-Babylonian prayer for the king on campaign (PBS 1/2 106), which contains a cosmological section which pairs Sîn and Šamaš.

PBS 1/2 106[223]:
rev.
3 EN$_2$ ^{d}30 *u* ^{d}UTU DINGIR.MEŠ *ki-lal-la-an*
4 30 *ša*$_2$ GE$_6$ ^{d}UTU *ša*$_2$ *kal u*$_4$*-mi*

"Incantation: Sîn and Šamaš the twin gods,
Sîn is of the night, Šamaš is of the whole day."

The text goes on to assign to them, in typical cosmological fashion, duties befitting the Moon and Sun gods: decisions of the sky and earth, setting out of the length of days, months and years, and destiny of the lands. A ritual text from Assur, KAR 184:43-44, also pairs Sîn and Šamaš using *kilallān*. The fact that the other references to Sîn and Šamaš as a pair of gods use *kilallān*, whereas our text uses *māšu* suggests that its usage here is not an excerpt from another text but rather the inclusion of a general theme of Sîn and Šamaš as a pair of gods.

There is one mention in the cell for Gemini of a festival for Gemini, EZEN MAŠ.MAŠ, which is presumably another ceremony otherwise unattested in the cuneiform record. Intriguingly, there is a festival in the Greek world that the twins, Dioskouroi, play a role in. This festival called, *theoxenia,* takes place once a year and the twins, also associated with Gemini, host the banquet for the gods.[224] It is possible that some of the ceremony surrounding the Greek festival was transposed onto the long standing tradition of twin gods in Mesopotamia.

223 The text was first editing by Ebeling in AnOr XVII (Ebeling 1949).

224 Burkert 1985, 213

3.5.4 Cancer

Attested on: VAT 7847+ (Leo), BM 41583 (Libra), BM 33535 (Sagittarius), K 11151+

u$_4$-*um* DINGIR IRI ^{d}UTU DI.KU$_5$ KUR *u* ^{d}ŠUL.PA.E$_3$.A BAD KA$_2$

"Day of the city god, Šamaš the judge of the land and Šulpaea, opening of the gate."

3.5.5 Leo

Attested on: VAT 7847+ (Leo), BM 41583 (Libra), K 11151+

u$_4$-*um* BAD KA$_2$ E$_2$.KUR ^{d}50 *u ana* ^{d}*a-nun-na-ki* A.MEŠ BAL-*qi*$_2$

"Day of opening of the gate of the Ekur of Enlil and for the Anunnaki libate water."

Commentary:

naqû (BAL, "to libate") does not appear elsewhere in the micro-zodiac texts. I understand its usage here at the end of this cell as a command to offer water to the Anunnaki. Libating liquids, and water especially is a well attested ritual activity (CAD N/1 *naqû* 1). The connection between the Anunnaki and water, must come their association as underworld gods who drank water just like the rest of the residents of the underworld. The characterization is found in mythological text as well, for instance, both *Ištar's Descent* and *Nergal and Ereškigal* include passages where the Anunnaki are said to drink water.[225]

3.5.6 Virgo

Attested on: VAT 7847+ (Leo), VAT 7847+ (Virgo), BM 41583 (Libra), K 11151+

u$_4$-*um* BAD KA$_2$ ^{d}30 *u* ^{d}15 *ana* ^{d}30 *u* ^{d}15 *na-mir-tu*$_2$

"Day of opening of the gate, Sin and Ištar, for Sin and Ištar brightness."

225 Kienast 1965, 145–146

3.5.7 Libra

Attested on: VAT 7847+ (Leo), VAT 7847+ (Virgo), K 11151+

u$_4$-*um* BAD KA$_2$ ^{d}30 ^{d}20 ^{d}15 ^{d}*a-nu* ^{d}50 ^{d}*e*$_2$-*a u* UR.SAG ^{d}NIN.GIR$_2$.SU

"Day of opening of the gate, Sin, Šamaš, Ištar, Anu, Enlil, Ea, and the hero Ningirusu."

3.5.8 Scorpio

Attested on: VAT 7847+ (Leo), VAT 7847+ (Virgo), K 11151+

u$_4$-*um* BAD KA$_2$ ^{d}*al-la-tu*$_4$ *u* UR.SAG GAL ^{d}U.GUR

"Day of opening of the gate, Allatu and the great hero Nergal."

3.5.9 Sagittarius

Attested on: VAT 7847+ (Leo), VAT 7847+ (Virgo), K 11151+

u$_4$-*um* UR.SAG GAL-*u* ^{d}PA.BIL.SAG EN GAL ^{d}*nin-urta*

"Day of the great hero Pabilsag, the great lord Ninurta."

3.5.10 Capricorn

Attested on: 42288+ (Aries), BM 34572+ (Gemini), VAT 7847+ (Leo), VAT 7847+ (Virgo), K 11151+

u$_4$-*um* AŠ.GANA$_2$ *eri-du*$_{10}$ ^{d}*a-nu*$_3$ *u* ^{d}*iš-tar*

"Day of the field of Eridu, Anu and Ištar."

Commentary:

The inclusion of the field, AŠ.GANA$_2$, and Eridu here is puzzling. I can find no explicit relationship between the Field-star/Pisces and the Eridu-star in the astronomical and astrological

literature. An associated can be found in the star lists in MUL.APIN, the Field constellation is quoted as being the dwelling, *šubat* of Ea in MUL.APIN I i 40, the Eridu-star is also associated with Ea in MUL.APIN I ii 20. Additionally, Eridu does appear in the Material Row under Pisces-Leo on Text 10 (BM 36292), but conversely, also appears two other times under Aries-Scorpio and Virgo-Scorpio.

3.5.11 Aquarius

Attested on: 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), VAT 7847+ (Leo), VAT 7847+ (Virgo), K 11151+

u$_4$*-um* UR.SAG GAL-*u* ^{d}AMAR.UTU *u* ^{d}*nin-urta*

"Day of the great hero Marduk and Ninurta."

3.5.12 Pisces

Attested on: 42288+ (Aries), BM 34572+ (Gemini), BM 34572+ (Cancer), W 22554/7 (Gemini), VAT 7847+ (Leo), VAT 7847+ (Virgo)

u$_4$*-um* ^{d}*iš-tar* GAŠAN KUR.KUR ^{d}AMAR.UTU LUGAL

"Day of Ištar, lady of the lands, Marduk, the king."

3.5.13 General Commentary

The one cultic ceremony mentioned in this row, the *pīt bābi*, "opening of the gate", is attested from the Old-Babylonian period onwards.[226] Contemporary evidence of the ceremony is attested in Uruk from a number of ritual texts, as well as one legal text.[227] The *pīt bābi* cere-

226 Landsberger 1968, 3–5

227 Linssen summarized the evidence for the *pīt bābi* in texts from both Uruk and Babylon (Linssen 2004, 36–

mony was closely tied to the *dīk bīti* ceremony, "awakening of the temple". Both occurred in the early morning before the temple was fully functioning during the day. The ceremony represented the point after which the daily workers, the *ērib bīti*, in the temple could enter and begin their duties. Despite the fact that it is well documented in the textual record, not much is known about the actual actions taking place during the ceremony.

The *pīt bābi* only occurs in the first eight minor signs, Aries-Scorpio. The last four signs of the zodiac do not include a reference to the *pīt bābi* ceremony. Linssen has tabulated on which days the references to the *pīt bābi* occurred in Uruk.[228] His tabulation revealed that most of the references fall in the first two thirds of the month, albeit a few are undated, and one occurs on the 30th. If the reference here to the *pīt bābi* actually refers to the daily ceremony attested in the cultic calendars then there is a small problem: one third of each month had no *pīt bābi* ceremony prescribed according to the tradition preserved in the micro-zodiac.

Major Sign: Aries (I)											
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗
Major Sign: Leo (V)											
V	VI	VII	VIII	IX	X	XI	XII	I	II	III	IV
✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓

Table 7: Occurences of the pīt bābi ritual

39). The evidence from Babylon is much less extensive, only two texts attest to its performance, they cover the 2nd-5th of Month I, and the 4th of Month IX (Linssen 2004, 39). It is also attested the name of a month, as well as a regular festival during other periods (CAD P 446 *pītu* 2 and 2').

228 Linssen 2004, 39

The sequence of days for which there was no *pīt bābi* ceremony rotated throughout the month. The ritual texts mentioned above, record the dates of the ceremony as occurring primarily in the first two thirds of months in which the ceremony is preserved at all. We might then see congruency in the lack of coverage for the entire month in both the ritual texts and the micro-zodiac. But, the periods for which there is no *pīt bābi* ceremony in the micro-zodiac occur at different points in the month throughout the year. For instance, in the above table, the occurences for the *pīt bābi* line up roughly with the preserved range of days from the ritual texts for the Major sign Aries, however, by Leo the period without a *pīt bābi* ceremony now occurs in the middle of the month. This means that the reference to the ceremony included in these rows could not have functioned as a cultic calendar. The micro-zodiac's recommendations for the *pīt bābi* find congruency with the ritual texts only for the first sign, once the Major and minor signs begin shifting their position, any congruency with the calendar is no longer applicable.

After the reference to the *pīt bābi* ceremony, if it is present, the cells record a list of dieties often with epithets. All the gods and their epithets are well known in the Mesopotamian tradition. Much like the material in Row A they reflect and general understanding of Mesopotamian divinity: Šamaš is the “judge of the land”, Ninurta is the “great hero”, Ištar is the “lady of the lands”. The gods and their epithets are tabulated below.

God:	Epithet:	Occurences:
City god		
	none	6
Ninurta		
	none	1
	EN GAL-*u*	1
	UR.SAG	1
	UR.SAG GAL-*u*	1
	Total	4
Ištar		
	none	2
	GAŠAN KUR.KUR	1
	Total	3
Marduk		
	EN GAL-*u*	1
	LUGAL	1
	UR.SAG GAL-*u*	1
	Total	3
Sîn		
	none	2
	māšu (with Šamaš)	1
	Total	3
Šamaš		
	none	1
	DI.KU$_5$ KUR	1
	māšu (with Sîn)	1
	Total	3
Anu		
	none	2

Enlil		
	none	2
Nergal		
	none	1
	UR.SAG GAL-*u*	1
	Total	2
Allatu		
	none	1
Anunnaki		
	none	1
Ea		
	none	1
Išḫara		
	none	1
Ningirsu		
	UR.SAG	1
Pabilsag		
	UR.SAG GAL-*u*	1
Šulpaea		
	none	1

Table 8: Frequency of Gods

Two interesting observations can be found in the locations of the gods under minor signs. Firstly, there is no correlation between the mention of a god in Row A and Row B. Only two gods are mentioned in both rows, and in both cases the cells in which they are mentioned do not match up.[229] The second more meaningful observation is that the minor sign with the

229 Ningirsu is mentioned in the Libra cell for Row B, but the Cancer cell in Row A. Ninurta is mentioned in the Cancer cell of Row A, but under Aries, Taurus, Sagittarius, and Aquarius in Row B.

highest number of gods (five) is the cell for Libra, which is equivalent with the seventh month Tašrītu. From multiple hemerological texts it can be shown that Tašrītu, especially the first part of the month was an auspicious time of the year for cultic action.[230] The fact that this cell preserves the highest number of gods suggests that the inspiration for each cell comes from an association with the Major sign or month, rather than another source.

The frequency for which the city god (DINGIR IRI) is included speaks to the dynamic nature of the micro-zodiac. The city god could presumably represent any local god wherever the client was based.[231] Evidence of the use of this term for that purpose comes to us from two texts, both divinatory in purpose. The first is a *šumma ālu* omen-type text which concerns boats, chariots, and temples. The largest contiguous section on the tablet preserves a series of omens that match the beginning of the Row B cells very closely. Each omen concerns events on "the day of the city's god."

TCL 6, 9:

o. 24 *u*$_4$-*um* DINGIR$^{!}$ IRI ŠEG$_3$$^{!}$ SUR-*nun* NAM.UŠ$_2$.MEŠ MU.GAL$_2$.MEŠ DINGIR IRI KI IRI-*šu*$_2$ *ze-ni*

"(If on) the day of the city god it rains: there will be plague, the city god will be angry with his city."

230 Tašrītu was considered a dangerous and unlucky month. Hemerologies pay special attention to it, the Hemerology of Nazimaruttaš edited by Livingstone is almost entirely concerned with actions during this month (Livingstone 2013, 177–192).

231 Weidner study the use of the city god in the Neo-Assyrian corpus and found that the timing of rituals for the city god were the same as those for the god Aššur (Weidner 1941). Suggesting that the city god in Assyria was the city god of the city of Aššur.

The use of the possessive suffix on the last IRI further suggests that the god here could be transposed on whichever diety was relevant at the time. The other Late Babylonian text which mentions the city god is a bilingual omen text.[232]

SpTU 1, 85:

r. 1 tukum-bi gu_2-gal[233] an-bar sa_{10}-sa_{10}-da lugal ma-⌜da⌝-[bi] niĝ$_2$-gig diĝir iri^{ki}-na-⌜ni⌝ [...]

r. 2 *šum-ma* LUGAL *par-zil-lu$_4$ i-ša$_2$-am* LUGAL KUR *ša$_2$-a-šu$_2$ ik-⌜ki-ib$^?$⌝* DINGIR IRI-*šu$_2$ u$_4$-mi-šam-⌜ma⌝* [...]

"If a king buys iron: the king of that land (has committed) a sin against the god of his city, daily. [...]"

This is a very similar construction to the text above, in that the possessive suffix again makes the designation of the god or the city dynamic. What is at least clear is that the Row B material does not have an obvious affiliation with a particular city and its god. If it did, we might expect either Marduk or Anu to be mentioned more than any other god.

232 This is one of very few omen texts written in Sumerian. From the Late Babylonian period only three bilingual omen texts were published, all from Uruk (Michalowski 2006, 247 n. 2).

233 The colophon of an Achaemenid lexical text from Babylon text uses gu_2-gal in place of *šarru* (Goetze 1945, 225, line 79).

3.6 Editions and Commentary

3.6.1 Text 1: BM 42288 + BM 42644 + BM 43414 + BM 43716

Museum Number: BM 42288 (81-7-1, 48), BM 42644 (81-7-1,405), BM 43414 (81-7-1, 1178), and BM 43716 (81-7-1, 1480).
Dimensions:

BM 42288: 12 x 7.1 x 3cm
BM 42644: not measured
BM 43414: 3.8 x 4.1 x 1.9cm
BM 43716: 6 x 3.8 x 2.9cm

3.6.1.1 Description

This tablet was assembled by the author in the British Museum from a number of unpublished fragments. It preserves an unusual version of the micro-zodiac table in which the whole tablet only concerns a single sign, in this case Aries, on both the obverse and reverse. The position of the table and curvature of the tablet suggests that there might have been another type of text above the micro-zodiac table. The only other text which contains only one sign for the entire tablet is Text 2 (VAT 7851). On the reverse of that tablet a circular incised pattern of text contains birth omens related to the zodiac, while the colophon names the next tablet as concerning Gemini.

Another interesting feature of this tablet is the fact that it follows the Uruk style row ordering. After the first Material Row, the rows then proceed A, B, C. This row ordering is reminiscent of the tablets from Uruk, specifically Text 4 (W 22554, 7a) and Text 7 (VAT 7847+). This presents a slight problem as this tablet is purportedly from Babylon. However, the fact that the table runs onto the reverse, and the tablet contains only one table suggests that the format of this text is a non-standard form of the micro-zodiac.

The script of this tablet is very tight and somewhat sloppy in places. Generally the cells are only one or two signs wide. In some cases the script almost takes a vertical character with the column only accommodating single sign after single sign, for example the Material Row for Leo.

3.6.1.2 Transliteration

Obverse: Aries

	^{mul}AŠ.⌜GANA$_2$ ^{mul}⌝[...] ^{mul}AŠ.GANA$_2$ ⌜^{mul}⌝[...] MUL.MUL ⌜^{mul}⌝[...] ^{mul}SIM.MAḪ ⌜SUḪUR⌝.MAŠ$_2$ ⌜^{mul}⌝[...] ^{mul}PA.BIL.⌜SAG ^{mul}⌝SIM.MAḪ ⌜x⌝ [...]											
	[...] ⌜^{iti}⌝DU$_6$ *ina* ^{iti}APIN ILLU ^{iti}APIN *ina* ⌜^{iti}⌝[...] [...] ⌜^{iti}⌝ZIZ$_2$ *ina* ⌜^{itu}⌝ŠE ILLU ^{iti}2ᴏ? *ina* ⌜^{iti}⌝[...]											
(Labels)	⌜^{mul}⌝lu$_2$⌝.ḫun.ga$_2$											
(?)	1;2ᴏ or 21 repeated											
(Headings)	^{mul}⌜LU$_2$.ḪUN.GA⌝	^{mul}⌜GU$_4$.AN.NA⌝	^{mul}⌜MAŠ.MAŠ⌝	^{mul}⌜AL⌝.⌜LUL⌝	^{mul}UR.⌜A⌝	^{mul}AB.SIN$_2$	^{mul}GIŠ.RIN$_2$	^{mul}GIR$_2$.TAB	^{mul}⌜PA.BIL.SAG	^{mul}⌜SUḪUR⌝.⌜MAŠ$_2$⌝	^{mul}⌜GU.LA⌝	^{mul}⌜AŠ.GANA$_2$⌝
(Material Row)	[...]	[...]	(traces)	*bar$_2$-sip$_2$*^{ki} ^{giš}MA.NU ^{giš}PA ^{u_2}*a-ra-an-<tu$_2$>* ^{na_4}SAG.KAL ⌜^{na_4}x⌝	EŠ$_3$.[NUN]. NA⌜^{ki}⌝ ^{giš}MES.GAM 3 ^{u_2}MUD ^{na_4}*ab$_3$-aš- mu* ^{na_4}*gab* IGI A	⌜x x⌝ ⌜x MAN⌝ ⌜A UD⌝ ^{giš}MA.NU ^{u_2}GIR$_2$ ^{na_4}KUR.RA ^{na_4}NIG$_2$.BUR 3.BUR$_3$	UD MAN GAR ⌜IR^{ki}⌝ ⌜^{giš}x x x⌝ ^{u_2}⌜KUR⌝.KU R ^{na_4}ZALAG$_2$ ^{na_4}GIŠ.NU$_{11}$. GAL	ERIDU⌜^{ki}⌝ ^{giš}x NUN ^{giš} ⌜x⌝ ⌜NUN ME⌝ AŠ ⌜KI⌝ ^{u_2}*dele-bat* ^{na_4}*ḫal-tu$_4$* ^{na_4}*pa-ru-ut tu$_4$*	⌜x UD⌝ GIR$_2$ [x] ⌜^{ki}⌝ ⌜^{giš}x⌝ ⌜^{giš}⌝ ⌜^{u_2}⌝GU$_4$ ^{na_4}EN.GI.SA$_6$	[x] ⌜x⌝ ⌜^{giš}NIG$_2$⌝.BU R$_3$.BUR$_3$ ^{giš}ŠE.NU$_2$.A ⌜x⌝ [x] TA NU ^{u_2}NA ^{na_4}IGI.ZAG$_3$. GA$_2$ ^{na_4}ŠIM.BI.ZI. DA	[...] [...] [...] [...] [...] [...] [...] [...] ^{na_4}TEŠ$_2$ NUMUN NI LUM	[...] [...] [...] [...] [...] [...] [...] [...] [...] [...] ⌜x⌝ x ⌜x⌝

												UR A
(Calculation Row)	[...] ⌜ḪA⌝.LA AN.TA *šaˀ* ᵈSAG.ME.GAR *ina* ᵈUTU ŠU₂.A 1;⌜4o?⌝ [...] [...] ⌜ᵈ⌝*a-nim ina* ᵈUTU ⌜ŠU₂.A⌝ [5o] ⌜5o⌝ *šu-ut* ᵈ*e₂-a ina* ᵈUTU ŠU₂.A ⌜25⌝ [...] [...].⌜MEŠ⌝ *an-nu-tu₂ ina* KI ⌜ᵐᵘˡ⌝[LU₂].⌜ḪUN⌝.GA ⌜KUR URI⌝ᵏⁱ EŠ.BAR-*šu₂-nu* ME-⌜*a* GAR-*an*⌝ [...]											
(Calculation Row)	[...] ⌜*a*⌝-*na dele-bat* ŠU₂ *u* 3;2o A.RA₂ 15 5o 5o ⌜*a-na*⌝ [...] ⌜3⌝;⌜4o?⌝ A.RA₂ 3o? 1 6 4o ⌜1⌝ [...] [...] A.RA₂ 15 5o 5o NIGIN₂-*rat* ᵈUTU *an-*⌜*na*⌝-[*a* ... NIGIN₂]-⌜*rat*⌝ *šaˀ* ᵈ3o *u* ⌜ᵈ⌝[2o ...] [...] ⌜ᵐᵘˡ⌝LU₂.ḪUN.GA 12 UZU.MEŠ x x ⌜x⌝ [...] ⌜x⌝ LU₂-*la* [...]											

Reverse: Aries

	(Aries)	(Taurus)	(Gemini)	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)
(Row A)	⌜KI GANBA⌝ [SUM].⌜SIKIL⌝ [ŠE.BAR].⌜RA⌝ [...]	*ana* ᵈGU₄.UD RA-*iṣ* GU₃ ᵈIŠKUR *ana* ᵈ⌜*ṣal*⌝-⌜*bat-a-nu*⌝ [IZI].⌜ŠUB⌝ [...]	KI GANBA SUM.SIKIL ŠE.BAR.RA ⌜*ri-ba*⌝ ⌜IZI.ŠUB⌝ [ḪI].⌜GAR⌝ [KI].⌜GIŠKIM⌝ [EŠ].⌜BAR⌝ KI [*ri-ba dan*]-*nu* [...]	KI ⌜ŠEG₃⌝ ZI TU₁₅ LA₂-*al še-im* EŠ.BAR *i₂-dig-lat u pu-rat sip-par*ᵏⁱ ⌜x⌝ᵏⁱ ⌜*u* LARSA⌝ᵏⁱ ᵈID₂ ⌜ᵈ⌝NIN.[GIR₂].⌜SU⌝ ⌜UR⌝.SAG [ᵈ]⌜*nin*⌝-⌜*urta*⌝	⌜KI NIG₂.E₃⌝ IZI.ŠUB ZI KUR₂ KI *um-šu₂ u* U₄.DA ᵐᵘˡ²BABBAR NIG₂.E₃ 3.2o *ana* ᵈ*ṣal-bat-a-nu* ZI KUR₂ *dan-nu* EREN₂! GAL KUR₄-*ma*	⌜KI SI.SA₂⌝ BURU₁₄ *na-pa-aš* ᵈNISABA SILIM ᵐᵘⁿᵘˢ PEŠ₄.ME KI ⌜SUM⌝ ⌜SIKIL⌝ GANBA KI EŠ.BAR ELAMᵏⁱ KI AN.TA. LU₃ *u* ᵈGU₄. ⌜U₄⌝ ᵈ*dele-bat-ma* x	KI ⌜EŠ.BAR⌝ GANBA DU₃.A.BI KA NU GI.NA A.RA₂ *ana* ᵐᵘˡ²BABBAR SIG.SIG-*ma ana* ᵈ*ṣal-bat-a-nu* KUR₄-*ma*	KI *ri-ba u* ZI KUR₂ IZI. ŠUB ⁱᵐGU₂ *ana* ᵈ GU₄.U₄ ⌜KUR₄⌝-*ma* [ᵐᵘˡ²] ⌜BABBAR⌝ SIG.SIG-*ma ana* ᵈ*ṣal-bat-a-nu* KUR₄-*ma* MUNUS.KUR₂.ME	KI IZI ŠUB *u qi₂-mi-tu₂* GU₃ ᵈIŠKUR *u* ZI TU₁₅ ŠEŠ.ME *ana* ᵈ *dele-bat u* ᵈ GU₄.U₄ *ana* ᵐᵘˡ²BABBAR *ki-ma* KUR₄.ME ᵈ *ṣal-bat-a-nu* zi	KI ŠEG₃ *u* ILLU *ana* ᵈ *dele-bat u* ᵈ GU₄.U₄ ᵈ*ṣal-bat-a-nu u* ᵈ SAG.UŠ ⌜ŠEG₃⌝ [*u*] ⌜ILLU⌝ ⌜x⌝.MEŠ ⌜*ma*⌝-[*la*]-⌜*a*⌝ [...]	E [*u*] [PA₅ NU] ⌜SI⌝.[ME ᵈ⌜*ṣal*⌝-[*bat*] *a-nu* KUR₄-⌜*ma*⌝ ˢᵉGIG ˢᵉIMGAGA *ina* KUR ZAḪ₂ *ana* ᵈ SAG.UŠ *ana* ᵈ [*dele-bat*] [...]	[...] ⌜*ana* ᵈ*dele-bat u* ᵈGU₄.U₄ *ana* ᵈ*ṣal-bat -a-nu u* ᵈ⌜SAG⌝.⌜UŠ⌝ NU ⌜KUR₄⌝ [...]

						x		⌜GAL$_2$⌝. [ME]	⌜KUR$_2$ KUR$_4$⌝- [*ma*]			
(Row B)	^{d}MAŠ EZEN IR$_3$ ^{d} PA IZ TUM	⌜x⌝ ⌜*x*⌝								[*u*$_4$-*um*] [AŠ GANA$_2$] [*eri*]- ⌜*du*$_{10}$⌝ ⌜ki⌝ ^{d} [*a-nu*]	⌜*u*$_4$⌝-*um* DINGIR IRI UR.⌜SAG⌝ [...]	*u*$_4$-*um* ^{d}⌜15⌝ ⌜GAŠAN KUR⌝ [...]
(Row C)	*ana* ^{d}AMAR.UTU *liš-ken* ⌜MUŠ⌝ [NU IGI]	UZU GU$_4$ ⌜NU⌝ [GU$_7$]										

3.6.1.3 Translation

Obverse: Aries

	The Field, The [...] The Field, The [...] The Stars, The [...] The Swallow, Capricorn, ... Sagittarius, Swallow, ...
	[...] Month VII in Month VIII, flood, month VIII, in [...] [...] Month XI in Month XII, flood, month XII, in [...]
(Labels)	[Ar]ies
(?)	1;20 or 21 repeated

(Headings)	[Aries]	[Taurus]	[Gemini]	Can[cer]	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	[Aquarius]	[Pisces]
(Material Row)	[...]	[...]	(traces)	Borsippsa, *ēru*-tree, "white-coral", *arantu*-grass, *sankallu*-stone [x]-stone	Eš[nun]na, MES. GAM_3-tree, MUD-plant, *abašmû*-stone, *gabû*-stone ...	... *ēru*-tree, myrtle, haematite, $NIG_2.BUR_3$. BUR_3-stone	... ...-tree, *atā'išu*-plant,*zalāqu*-stone, alabaster	Eridu, ...-tree, ...-tree, ... venus-plant *ḫaltu*-stone, *parūtu*-stone	..., ...-tree, ...-tree ox-plant, $EN.GI.SA_6$-stone	..., $NIG_2.BUR_3$. BUR_3-tree, *šunû*-tree ... *amīlānu*-plant, *egizaggû*-stone, *guḫlu*-stone	..., $TEŠ_2$-stone ...	...
(Calculation Row)	[...] the upper portion of Jupiter at sunset is 1;40 [...] [...] of Anu at sunset is [50], 50, those (stars) of Ea at sunset are 25 [...] [...] these in the place of [A]ries, the land of Akkad, their decision you make a prediction.											
(Calculation Row 2)	] For Venus at sunset and 3;20 times 15 is 50, 50, 50 for [...] 3;40 times 30 ...] times 15 is 50, 50 the circumference of the sun, thes[e ... circumfer]ence of the moon and [sun]] Aries 12 parts .... [...]											

Reverse: Aries

	(Aries)	(Taurus)	(Gemini)	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)
(Row A)	Sign of trade of onions and barley	For Mercury destruction thunder;	Sign of trade of onions and	Sign of rain, onset (gust?) of wind will	Sign of victory, lightning, attack of	Sign of good harvest, abundant	Sign of a decision on all trade,	Sign of earthquake, attack of an	Sign of lightning, burning, thunder,	Sign of rain and flood, for Venus and	Dike [and ditch will not] be in [order],	... for Venus and Mercury, for Mars

	...	for Mars lightning ...	barley, earthquake, lightning, rebellion; sign of a (divinatory) sign and decision; sign of strong earthquake ...	be scarce, barley, decision of the Tigris and Euphrates, Sippar, Larsa, the divine river, the river of Nin[gir]su, the hero Ninurta.	the enemy; sign of summer and light, for Jupiter victory of the king, for Mars, attack of the strong enemy, great troops, (and) brightness.	grain, well-being for pregnant women; sign onion trade; sign of a decision of Elam; sign of an eclipse and Mercury and Venus.	untrue speech ... advice, for Jupiter faintness, for Mars brightness.	enemy, lightning and mud, for Mercury will be bright; Jupiter will be faint, for Mars will be bright, existence of hostilities.	and gust of wind (these are) paired, for Venus and Mercury, for Jupiter when it is bright, Mars attack of an enemy, brightness.	Mercury; Mars and Saturn, rain [and] flood ... matted hair, ...	Ma[rs] will be bright, and wheat and emmer will perish in the land; for Saturn, for [Venus,] ...	and Saturn no brightness ...
(Row B)	...	...								... Eri[du] ...	Day of the city god, warrior ...	Day of Ištar lady of the land[s} ...
(Row C)	He should prostrate before Marduk, he should not see a snake	Do not eat ox flesh.										

3.6.1.4 Critical Apparatus

Obverse: Aries

Initial Sections:

These rows are relatively easy to read but represent content outside of the traditional micro-zodiac series.

Material Row:

On the whole this section is difficult to read. The cracks and joins between fragments of this tablet are most evident over the Material Row sections, and the lack of any parallel source makes restoration difficult.

Cancer: The writing of *arantu* here is missing the final tu_2 which we would expect from the writing of this plant name on other tablets of this period and genre. The omission of the final syllable is also the case on Text 7 (VAT 7847+), Virgo-Gemini. The last material in this cell is certainly a type of stone but the fragmentary nature of this section makes it difficult to figure out what sign is preserved here.

Leo: The last two signs in this cell are clearly written, but their relation to the final material is unknown.

Virgo: The fragmentary nature of the beginning of this cell makes reading the name of the place difficult.

Libra: The place name here is made difficult to read by the fragmentary nature of the join between fragments.

Scorpio: The join between fragments has made the middle of this section, the tree names, difficult to read.

Sagittarius: The name of the place in this cell is bisected by two larger cracks in the fragment rendering the signs very difficult to read.

Capricorn: We would expect to find $\text{NIG}_2.\text{BUR}_3.\text{BUR}_3$ later in the material section, as elsewhere in the series it only appears as a stone. However, the writing is clear enough here to identify it as a type of tree.

Aquarius: Little remains of this cell.

Pisces: Almost nothing remains of this cell on the tablet.

Calculation Row:

The first part of this section parallels the composite version almost identically with the obvious substitutions of different numbers appropriate to the Major sign. The second part of the calculation row, divided from the former by a horizontal line shows up on a few other micro-zodiac tablets, and seems to be more mathematical in nature. Text 3 (BM 34572) might preserve an abbreviated version of this row on the Gemini (obverse) side of the tablet. W 22554,7a might also preserve a fragmentary section of this second Calculation Row on Gemini (obverse) side of the tablet. VAT 7847+ preserves this secondary Calculation Row but only on the Leo side (obverse) of the tablet. These examples might lead us to assume that this secondary Calculation Row only occurs on the first sign of the tablet, i.e. the obverse of the text, as is the case with the current tablet. However, BM 32517 and BM 36292 both preserve the rele-

vant section with no sign of the secondary row. An argument for its inclusion or omission based on provenance also does not work based on the mixed provenance of those tablets which do preserve this row.

Reverse: Aries

Row A:

Taurus: This cell, where preserved, parallels the composite text almost identically. One small difference helps to clarify the reading of a sign in the composite version. The writing RA-*iṣ* here, allows for the confident reading of the sign RA in the composite text as *riḫṣu*.

Cancer: For the most part this cell follows the composite text. An additional place name is included between Sippar and Larsa, which is unfortunately obscured by damage. The "river of Ningrisu" is omitted in favor of just Ningirsu. It could be that the presence of "the divine river" directly before it, led to confusion about the need for a second ID_2 sign.

Leo: The cell mostly follows the composite text. One noticable differences is the omission of the first mention of Mars. The sign at the end before the last GAL, must be a mistake for $EREN_2$, from the composite text.

Virgo: This cell omits barley, ŠE.BAR.RA, before GANBA. Likewise, it omits LUGAL before $ELAM^{ki}$. Finally it reverses the order of Mercury and Venus at the end of the cell.

Libra: This cell differs from the composite text in a few ways. First, GI.NA replaces the shorter form of GI at the beginning of the cell. $A.RA_2$, "advice" is left without a modifying clause, which in the composite text is NU $SI.SA_2$. Finally, at the end of the cell Saturn is omitted

entirely. There is sufficient blank space beneath the end of the cell in which the signs for Saturn could have been written, and the scribe of this tablet did not space text out to fill in empty space.

Sagittarius: The only difference between this cell and the composite text is the addition of ZI TU_{15} right after GU_3 ^{d}IŠKUR. This addition is not surprising as ZI TU_{15} occurs elsewhere in the Row A material.

Capricorn: This cell only differs from the composite text in replacing KUR with another sign which is unfortunately right on the damaged join between two fragments. One possible restoration would be UN.MEŠ which maintains the semantic meaning of the clause.

Row B:

Aries: It is difficult to find correlation between the composite text and what is preserved on the tablet.

Taurus: Very little is preserved of the contents of this cell.

Row C:

Aries: While the identification of the minor and major sign here is not certain, the restoration of this cell is relatively easy based on the limited corpus of material for Row C.

Taurus: Similar to the previous cell, the identification is not certain but restoration is relatively secure.

Aquarius: This cell adds the city god first, which is absent in the composite text.

3.6.1.5 Commentary

Obverse:

Initial Sections:

The material before the micro-zodiac on this tablet does not match the traditional initial lunar eclipse omen preserved on many of the other texts. This is not entirely surprising because of the strange format of this text. What is preserved instead, is a very fragmentary list of constellations, followed by section that seems to be equating months and perhaps meterological phenomena. This section has no parallels in the rest of the micro-zodiac texts.

Labels:

The label for Aries here is exactly what we would expect. If more were preserved, we might anticipate a label for the sun as the sun's *bīt niṣirti* is in Aries.[234]

Material Row:

Cancer: The city of Borsippa only appears once in the micro-zodiac series. The *ēru*-tree, ^{giš}MA.NU (CAD E 318 *ēru*), appears in six distinct places within the micro-zodiac, interestingly one place it appears is in the inverse Major and minor sign cell, Cancer-aries on Text 3 (BM 34572). ^{giš}PA shows up twice in the micro-zodiac and with NA_4 and U_2 as determinatives in two other places. The writing of ^{giš}PA should probably be read as *ḫaṭṭu*, "staff" or "branch" (CAD Ḫ 155 *ḫattu* 4). A Neo-Assyrian text containing a ritual for the replacement of the substitute king contains a reference to both ^{giš}PA and ^{giš}MA.NU.[235]

K. 2600+:

0. ii 21 2 SUḪUR.MAŠ$_2$.Ku$_6$ *ša* ^{giš}ŠINIG *ša*$_2$ ^{giš}PA *ša*$_2$ ^{giš}MA.NU *na-šu*$_2$*-u* [DU$_3$*-uš*]

234 Rochberg-Halton 1988a, 57

235 Lambert 1957

"[You make] 2 Capricorns of tamarisk which are holding a stick of *ēru*-wood."

The *arantu*-plant (CAD A/II 231 *arantu*) appears in Uruanna I near the plant SAG.KAL which happens to be the next entry in this material cell but with a NA_4 determinative. ^{na_4}SAG.KAL (CAD S 25 *sagkallu*) is attested from a couple stone lists but otherwise is not connected with Cancer or Aries.[236]

Leo: The city of Ešnunna is associated with Leo through a restoration made in BM 36303+.[237] However, none of the other minor Leo cells or any of the cells on Text 7 (VAT 7847+) for Leo contain a reference to Ešnunna. I can find no reference to tree ^{giš}MES.GAM_3 in the Late Babylonian corpus. There is a star with the same name mentioned in TCL 6, 21 as one of the fixed stars related to The Crook, $^{mul}GAM_3$, near Taurus and Gemini. ^{u_2}MUD appears here as a plant and once as a stone in Text 7 (VAT 7847+) Virgo-pisces, presumably in both cases it is a dark plant or stone (CAD D 74 *da'mu*). *abašmû*-stone appears frequently in charms and rituals (CAD A/I 39 *abšmû*). It also appears alongside ^{na_4}*gabî,* "alum" (CAD G 7 *gabû*), in AMT 84, 4, iii 3 where it is written with the U_2 determinative. The writing of IGI A after ^{na_4}*gab* is unclear.

Virgo: Myrtle, *asu*, $^{u_2}GIR_2$ (CAD A/II 342 *asu*), is a very common ingredient in rituals and medicine and appears in numerous cells of the Material Row. In at least two cases it is present in inverse cells, Leo and Sagittarius, and Cancer and Sagittarius. Mountain-stone, ^{na_4}KUR.RA, is one of many mountain materials found in the micro-zodiac, perhaps to be read *šadânu*. The

236 See SpTU 4, 219 and SpTU 5, 273, Achaemenid and Seleucid respectively.

237 This section, obverse B. 1'-7', is missing the first half of the line which would have preserved the constellations. However, the order of the cities is mostly paralleled in BM 47494 where the constellations are preserved (Steele 2015a).

stone itself is also attested in a list of stone from the Late Babylonian period, SpTU, 4, 219 obv. 7. The "drilling"-stone, *pallišu*, ^{na_4}NIG$_2$.BUR$_3$.BUR$_3$ (CAD P 69 *pallišu* 3), is used in incantations and in medicine. It is listed, like many of the stones in the Material Row, in SpTU 2, 22+ r. i 23, likewise on Stone List 1.[238]

Libra: *atā'išu*-plant, ^{u_2}KUR.KUR (CAD A/II 480 *atā'išu*) is an unidentified medicinal plant used in a variety of methods of treatment. It is attested on a Late Babylonian list of drugs.[239] It often appears with the *aktam*-plant (CAD A/I 282 *aktam*), which is also unidentified.[240] *za-lāqu*-stone, ^{na_4}ZALAG$_2$ (CAD Z 33 *zalāqu*), is a well attested medicinal stone. It appears first on a list of stones from the Late Babylonian period.[241] Alabaster (^{na_4}GIŠ.NU$_{11}$.GAL, *gišnugallu,* CAD G 106 *gišnugallu* e.) is not often used in ritual and medical contexts, it was more commonly used in material goods, either buildings or objects. It does show up on Stone List 1.[242]

Scorpio: Eridu is not associated with Scorpio in the astrological geography texts.[243] The Venus-plant, ^{u_2}*dele-bat*, appears in only one other Material Row, Gemini-Pisces. It might perhaps be a scribal mistake for the medicinal plant *ēdu* written ^{u_2}DIDLI (CAD E 38 *ēdu*), which appears in Plant List 1.[244] *ḫaltu*-stone is used in amulets (CAD Ḫ 53 *ḫaltu*). The inclusion of

238 Finkel 2000, 183

239 BM 42629+ in Finkel 2000, 185.

240 LKU 56+62:12, STT 2, 280 obv. i. 15, SpTU 1, 46 rev. 11.

241 BM 42445 and BM 42649 in Finkel 2000, 183.

242 Finkel 2000, 283

243 Steele 2015b, 215

244 Finkel 2000, 185

parūtu, another type of alabaster, here must mirror alabaster in the previous cell (CAD P 211 *parutu*).

Sagittarius: I can find no attested reading of $^{u_2}GU_4$. *engisû*-stone, $^{na_4}EN.GI.SA_6$, is attested on Stone List 1 written syllabically, as *en-gi-su-u*.[245] It is attested three times on SpTU 2, 22+, twice it is associated with $^{na_4}IGI.ZAG_3.GA_2$ which is present in the next cell.

Capricorn: For $^{giš}NIG_2.BUR_3.BUR_3$ see the commentary under Virgo above, note however the different determinative. *šunû*, $^{giš}ŠE.NU_2.A$ (CAD Š/III 309 *šunû*) appears in Plant List 1 and is well attested in the medical literature. *amīlanu*, ^{u_2}NA (CAD A/II 46 *amīlanu*), is a well attested medicinal plant. *egizaggû*-stone, $^{na_4}IGI.ZAG_3.GA_2$ (CAD E 47 *egizaggû*), is attested as a medicinal stone. As mentioned above it associated with *engisû* stone twice in SpTU 2, 22+.

Aquarius: $^{na_4}TEŠ_2$ is not well attested outside of the Late Babylonian period. It appears on Stone List 1[246] and SpTU 2, 22+. It may have semantic connections with *baštu*, "pride, ornament", (CAD B 143 *baštu*).

Calculation Row: This is a standard formula throughout the micro-zodiac. See the introduction to this chapter for an overview of the contents.

Calculation Row 2: This section is rather garbled and perhaps represents a corrupted tradition having to do with the calculation of the circumference of the moon. The mention on the last line of the 12 divisions of Aries parallels the language used by TCL 6, 14 in discussing the micro-zodiac scheme (see Chapter 4).

245 Finkel 2000, 183

246 Finkel 2000, 183

Reverse:

Row A, see composite text and commentary

Row B, see composite text and commentary

Row C:

Aries: The first element in this cell instructs the client to prostrate, *šukênu*, before the god Marduk. There is good evidence from the Neo-Assyrian period which connects prostration to Marduk with the beginning of the month Nisannu.

SAA 10, 74:
o. 19 DIŠ *ina* ^{iti}BARAG UD.4.KAM
o. 20 *a-na* ^{d}AMAR.UTU *liš-ken*

"On the fourth of Nisannu (I),
he should prostrate before Marduk."[247]

This text written from a scholar, Nabû-aḫḫe-eriba, to the king, offers hemerological excerpts for the beginning of Nisannu. The scholar only covers the first, second, and fourth of the month. The congruency between this text and the Row B material of the micro-zodiac is striking and suggests a source text which existed both in the Neo-Assyrian period and the Late Babylonian period.

247 This is also the first line of the Prostration hemerology.

Taurus: The prescription against eating bull meat here has no direct parallels in Nisannu, but can be found in multiple hemerologies for the month Tašrītu.[248] Its inclusion here under Taurus probably is connected to the image of Taurus as a bull.

248 The Babylonian Alamanac contains this instruction on the 27th of Tašrītu, the hemerology of Nazimaruttaš has it for the 5th of Tašrītu. CTN, 4, 58 another hemerology for Tašrītu preserves this instruction on the 2nd and 5th of the month.

3.6.2 Text 2: VAT 7851

Museum Number: VAT 7851
Dimensions: ?
3.6.2.1 Description

This tablet was initially edited by Weidner.[249] It is perhaps best known not for its astrological content, of which there is less than most of the other micro-zodiac tablets, but rather for its depiction of the moon and the constellation the Bull of Heaven. The moon in particular is interesting for the incised image within the circle of the moon of a man in combat with a snake/lion hybrid. This imagery was studied in detailed by Beaulieu.[250] The band of imagery also includes the seven stars of the Pleiades, which are labelled in cuneiform as MUL.MUL.

While not much is preserved on the micro-zodiac tablet itself, save for the Initial Omen, Imagery and Labels, and the headings, that tablet clearly represents a slightly different tradition. Unlike the other micro-zodiac tablets, the reverse of the tablet does not contain another table of the micro-zodiac. This is coupled with the fact that Taurus itself is the second sign of the zodiac, we would expect it to appear on the reverse of a tablet. All of the other micro-zodiac tablets, except for one other outlier, Text 1 (BM 42288+), contain two signs of the zodiac one on each side, with the obverse side of the tablet assigned to an odd numbered sign, and the reverse the following even numbered sign. The other tablet which does not follow this scheme happens to be the table for Aries, BM 42288+. The fact that BM 42288+ and VAT 7851 come from Babylon and Uruk respectively suggests that they were not thought of as part of

249 Weidner 1967 text 1

250 Beaulieu 1999

the same group of tablets. Also, another argument against their pairing is the remarkably different style between the two texts.

Finally, on the reverse of VAT 7851 is a curious incised circular text. The contents concern the potential threats to pregnancy when a child is conceived under a certain zodiac sign. The material is brief and formulaic. Beneath the circular text is a standard incipt for the next tablet in the micro-zodiac series and a colophon naming Anu-aḫu-iddin as the owner and Anu-mukkin-apli as the author of the tablet.

3.6.2.2 Transliteration

Obverse: Taurus

(Prayer)	*ina* ⌜*a*⌝*-mat* ^{d}60 *u an-tu*$_4$ *lis-lim*
(Initial Omen)	¶ 30 *ina* $^{mul_2!}$GU$_4$ AN.GE$_6$ EN.NUN MURUB$_4$*-ma* GAR*-ma* ^{im}U$_{18}$.LU DU ⌜*ina* AN.GE$_6$⌝*-šu*$_2$ ^{d}*dele-bat* NU GUB $^{<mul>}$UDU.IDIM.SAG.UŠ *ḫi-pi*$_2$ IZ [*ina* AN.GE$_6$*-šu*$_2$ ^{d}SAG.ME.GAR GUB*-iz* *ḫi-pi*$_2$ SUMUN*-bar šal-pu*$_2$*-ti*$_3$ KUR ELAM.MA^{ki} KUR ELAM.MA^{ki} *uš-tal*$_2$*-pat* KUR*-su* KAR*-a′* LUGAL ELAM.MA^{ki} ⌜*ina* ^{giš}TUKUL⌝ [GAZ ...] NU GUR*-ra* DUMU *la ma-am-na* E$_{11}$*-ma* AŠ.TE KUR ELAM.MA^{ki} [...]
(Labels)	{imagery} MUL.MUL
(Headings)	SAG GU$_4$ MUL.MUL ^{mul}GU$_4$.⌜AN⌝.[NA] ⌜^{mul}MAŠ⌝.[MAŠ ^{mul}SIPA⌝ ⌜^{mul}⌝[AL.LUL] ⌜^{mul}⌝[UR.GU.LA]

Reverse:

(Circular Text) (Rotated 180°) (Right-to-Left)	⌜6⌝ 30 *ina* KI AŠ.GANA$_2$ AN.GE$_6$ GAR [LU$_2$].⌜TUR⌝ *re-ḫu* LU$_2$.TUR.BI [TA ŠA$_3$ AMA*-šu*$_2$] ⌜x⌝ KI x] ⌜x⌝ SAG KAL	7 30 *ina* KI ^{mul_2}LU AN.GE$_6$ GAR LU$_2$.TUR *re-ḫu* LU$_2$.TUR.BI TA ŠA$_3$ AMA*-šu*$_2$ GURUŠ.LIL$_2$.LA$_2$ DAB*-su*	8 30 *ina* KI MUL$_2$.MUL$_2$ AN.GE$_6$ GAR LU$_2$.TUR *re-ḫu* LU$_2$.TUR.BI TA ŠA$_3$ AMA ŠU.DINGIR.RA DAB*-su*	9 30 *ina* KI MAŠ.⌜MAŠ⌝ [AN.GE$_6$ GAR] LU$_2$.TUR *re-*⌜*ḫu*⌝ [LU$_2$.TUR.BI] TA ŠA$_3$ [AMA*-šu*$_2$
(Colophon)	¶ 30 *ina* KI ^{mul}MAŠ.TAB.BA.GAL AN.GE$_6$ GAR*-ma* EN.NUN *ig-mur u* ^{im}MAR.TU$_3$ IM $^{m.d}$60.ŠEŠ.MU *qat*$_3$ $^{m.d}$60.DU.A MUD ^{d}60 NU *i*-TUM$_3$*-šu*$_2$ *a-ḫu-u* NU *i-mar*			

3.6.2.3 Translation

Obverse: Taurus

(Prayer)	By the command of Anu and Antu, may it go well.

(Initial Omen)	An eclipse occurs when the moon is in Taurus, in the middle of the first watch. A south wind blows. During its eclipse, Venus is does not stand, Saturn {*break*} ... in its eclipse Jupiter stands {*break*} ... will be long. Ruination of Elam, Elam will be destroyed, its land pillaged, the king of Elam [will be killed] with a weapon ... will not return. Son of a nobody will rise up and [take] the throne of Elam ...										
(Labels)	Pleiades										
(Headings)	Start (with Taurus) Pleiades, Taur[us]	Gem[ini], Orion	[Cancer]	[Leo]							

Reverse:

(Circular Text) (Rotated 180°) (Right-to-Left)	6: (If) the moon is eclipsed in Pisces, (and) [the chi]ld is sired. That child will [be seized from its mother's womb by a] ...	7: (If) the moon is eclipsed in Aries (and) the child is sired. That child will seized from its mothers womb by a male-demon.	8: (If) the moon is eclipsed in Taurus (and) the child is sired. That child will be seized from its mother's womb by the Hand-of-a-God.	9: (If) the moon [is eclipsed] in Gemini (and) the child is sired. [That child will be seized] from [its mothers] womb [by ...]
(Colophon)	The moon is eclipsed in Gemini, the first watch ends and the west wind [blows] Tablet of Anu-aḫu-iddin, hand of Anu-mukkin-apli, who revers Anu will not take it away, (and) will not show it to an outsider.			

3.6.2.4 Critical Apparatus

Obverse: Taurus

Initial Omen:

The Initial Omen for Taurus starts off paralleling BM 36746+[251], much like the other Initial Omens for other micro-zodiac tables. The omen for Taurus is not actually preserved on BM 36746+, however, the beginning and general vocabulary are shared throughout the sections for each of the Major signs. Despite the early parallels with BM 36746+ and the other micro-zodiac sections, it is clear that the scribe's source text for this section was badly damaged. This is clear both from the two preserved *ḫi-pi*$_2$ glosses as well as the abbreviated nature of the section.

Beyond the issues of a potentially damaged source, this section aligns closely with the typical structure of the Initial Omens. I read the initial location of the moon as ^{mul_2}GU$_4$ instead of ^{iti}GU$_4$ as Weidner does. While I was not able to colate the tablet, inspection of the photograph suggests a reading of MUL$_2$. It would be highly irregular for this section to name a month instead of a zodiac sign, as every other instance of an Initial Omen uses the zodiac sign as the location of the moon. Good parallel evidence for reading the constellation rather than the month comes from BM 36746+, where each omen also begins with the moon in a zodiacal sign introduced with the MUL determinative.

Headings:

251 Rochberg-Halton 1984

The three partially preserved headings are completely standard and match the rest of the micro-zodiac tablets. However, the initial SAG GU_4 is very interesting. First, it is not written perpendicular to the tablet, clearly marking it as separate to the column headings. While it might be tempting to read it as shorthand for the Major sign Taurus, it is more likely that it should be read as Month II.

Reverse:

It is clear that this tablet did not contain two micro-zodiac tables, both from the placement of this circular section and the incipit included in the colophon. The circular section on the reverse contains four sectors of a circle presumably divided into twelve parts. The cells preserve numbers from six to nine, but cover the zodiacal signs from Pisces to Gemini. This is unusual and we might expect that these numbers correlate with the months. But, by extrapolating backwards we find that sign associated with the number one in this diagram is Libra. The contents of each cell is simple and rather formulaic. Each cell is concerned with conceiving a child under a certain sign and what evil might threaten the pregnancy. The first preserved cell is difficult to read in its entirety.

3.6.2.5 Commentary

Obverse:

Initial Omen: The association of Taurus with Elam and the south wind in this section is in line with the astrological scheme of associating triplicities of months/signs with the four lands and four winds.[252] The general scheme dates earlier to the Neo-Assyrian period and is

252 Rochberg-Halton 1984, 121

found in the commentary on EAE, Sîn ina Tamartišu.[253] The rest of the Initial Omen sections, both those preserved on BM 36746 and in the rest of the micro-zodiac texts, state that the eclipse occurs when the watch is finished, *gamāru*. This text states that the eclipse occurs in the middle, MURUB$_4$, of the watch.

Reverse:

Circular Text: For another text containing omens concerned with the date of conception see LBAT 1588+1589. This text seems to record planetary phenomena at the moment of conception.[254]

Colophon: The preserved catch-line means that the next tablet in the series is the micro-zodiac tablet for Gemini. For the scribes involved in the production of this tablet see Chapter 2.

253 Koch-Westenholz 1995, 105–106

254 Rochberg-Halton 1988c, 325, n. 17

3.6.3 Text 3: BM 34572 + 81-7-6,705 + Sp-II, 253

Museum Numbers: BM 34572, 81-7-6,705, Sp-II, 253, Baked in 1965
Dimensions: 17.2 x 10.1 x 3.5cm

3.6.3.1 Description

This tablet was initially published by Weidner in his edition of the micro-zodiac texts. Since then a small fragment was joined to the right side of the original text. This fragment preserves the right edge of the tablet which helps to place the text in its schematic context. The tablet preserves the entire height of the micro-zodiac table on the obverse, and most of the height of the table on the reverse. Unfortunately the width of the current tablet is not sufficient to preserve the entire table. That being said, this tablet gives us the best example of the micro-zodiac tradition from Babylon, in comparison with the tablets from Uruk. This tradition does a number of things differently from the Uruk tablets. It re-orders of the rows: Material Row, Row C, Row B, and Row A, as well as lacks the imagery above the column headers.

Where the imagery would have been is a single row with incised lines bordering the top and bottom. Contained within is just a single label for Jupiter, probably other labels were written to the left and right, but are no longer present due to the fragmentary nature of the text. Below this row is a line of incised boxes, probably reconstructed to number thirty. Around the middle of this line the number thirty is written within one of the boxes.

3.6.3.2 Transliteration

Obverse: Gemini

(Headings)	[^{mul}PA.BIL.SAG]	[^{mul}]˹SUḪUR˺.MAŠ$_2$	^{mul}GU.LA	[^{mul}AŠ.GANA$_2$]	[^{mul}LU$_2$.ḪUN.GA]	[MUL.MUL][^{mul}GU$_4$.AN.NA]
(Material Row)	[...]	E$_2$ ŠE.RI.GA ^{giš}<U$_2$>GIR$_2$.A.AB.BA ^{u_2}LU$_2$-*an* ^{na_4}UGU.AŠ.GI$_3$.GI$_3$	E$_2$ ^{d}ŠAKAN$_2$ ^{giš}MES ^{u_2}LAL ^{na_4}*a-laḫ-lu$_4$*	E$_2$ ^{d}UTU ^{giš}*šu$_2$*-TE$_3$ ^{u_2}*dele-bat* ^{na_4}ZALAG$_2$ ^{na_4}IGI.KU$_6$	˹e$_2$˺ [... ˹^{giš}˺ [... ˹^{u_2}˺ [... ^{na_4} [... ^{na_4} [...	[...]
(Row C)	[...]	˹KU$_6$˺ NU GU$_7$ ˹AN.GE$_6$˺ 2O ˹*di*˺-*nu$_3$* ˹ŠE˺.GA	^{giš}MA$_2$.GUR$_8$ NA U$_5$ *ana* ^{d}*e$_2$-a* *liš-ken*	*ana di-nim* DU-*ku* GAŠAN ŠE.GA *ana* A.ŠA$_3$ A.GAR$_3$ E$_3$ SILIM-*im*	DI NU ˹ŠE˺.[GA *ana* ^{d}˹UTU˺ NU *uš*-[*ken*] MUŠ NU ˹IGI˺	[...]
(Row B)	[...]	[*u$_4$*]-*um* [AŠ].GANA$_2$ ˹ERI˺.DU$_{10}$ ^{d}*a-nu$_3$* [*u*] ^{d}15	*u$_4$-um* DINGIR IRI UR.SAG GAL-*u* ^{d}AMAR.UTU *u* ^{d}NINURTA	*u$_4$-um* ^{d}*iš-tar* *be-let* KUR.KUR ^{d}AMAR.UTU LUGAL	*u$_4$-um* BAD [KA$_2$] EN GAL-˹*u*˺ ^{d}AMAR.UTU *u* UR.˹SAG˺ ^{d}*nin-urta*	˹*u$_4$-um*˺ *il$_3$* ˹IRI˺ UR.˹SAG˺ GAL-˹*u$_2$*˺ ^{d}*nin-*˹*urta*˺ BAD KA$_2$
(Row A)	[KI IZI.ŠUB] [*qi$_2$-mi*]-˹*tu$_2$*˺ [*u* GU$_3$] ˹^{d}˺IŠKUR	[KI] ŠEG$_3$ *u* ILLU *ana* ^{d}*dele-bat*	E *u* PA$_5$ NU SI.SA$_2$ME ^{d}*ṣal-bat-a-nu*	KI PIŠ$_{10}$ SI.SA$_2$ ^{giš}ŠE.GIŠ.I$_3$	KI ˹GANBA˺ SUM.˹SIKIL˺ ŠE.BAR.˹RA˺	*ana* ^{d}GU$_4$.U$_4$ RA GU$_3$ ^{d}IŠKUR GAL.ME

	[*u* ZI] TU$_{15}$ ⌜ŠEŠ⌝.MEŠ [*ana* ^{d}]⌜*dele-bat*⌝ [*u* ^{d}GU$_4$ *ana*] ⌜^{mul_2}BABBAR⌝ [*ki-ma* KUR$_4$-*ma*] [^{d}*ṣal-bat-a-nu*] [ZI KUR$_2$ KUR$_4$-*ma*]	*u* ^{d}GU$_4$.U$_4$ <*ana*> ^{d}*ṣal-bat-a-nu* *u* ^{d}SAG.UŠ ŠEG$_3$ *u* ILLU KU$_5$ [KUR *ma-la-a*] [IL$_2$ *na-zaq* KUR] [DU$_3$.A.BI]	KUR$_4$-*ma* ^{še}GIG IMGAGA *ina* KUR ZAḪ$_2$ [*ana* ^{d}SAG.UŠ] [*ana* ^{d}*dele-bat*] [^{d}GU$_4$.U$_4$] [*u* ^{mul_2}]BABBAR ⌜SI⌝.SA$_2$.ME	ZU$_2$.LUM.MA *ka-si-i*$_2$ *ana* ⌜^{d}⌝[*dele-bat*] [*u* ^{d}GU$_4$ *ana*] [^{d}*ṣal-bat-a-nu*] [*u* ^{d}SAG.UŠ] [NU KUR$_4$.ME] ^{mul_2}⌜BABBAR⌝ SIG.SIG-*ma*	*ana* <^{d}>⌜SAG⌝.[UŠ] [^{mul_2}BABBAR] [SIG.SIG-*ma*] [*ana* ^{d}*ṣal-bat-a-nu*] [ZI KUR$_2$] [KUR$_4$-*ma*] [*ana* ^{d}GU$_4$] ⌜ŠEG$_3$⌝ SIG.SIG-[*ma*]	*ana* ^{d}*ṣal-bat-an-nu* izi.šub *ri-ba* KI RA UGU ⌜GAL.ME⌝ [ZI TU$_{15}$ GAL] [*ana* ^{d} GU$_4$] [^{d}*dele-bat* [KUR$_4$-*ma*]
(Calculation Row)	…] ⌜*šu*⌝-*ut* ^{d}*a-nu*$_3$ *ina* ^{d}UTU ŠU$_2$.A 1 1 *šu-ut* ^{d}*e*$_2$-*a* ⌜*ina* ^{d}⌝[UTU ŠU$_2$.A 3O 3O … *it*]-⌜*ti*⌝ GISKIM KUR MAR.TU^{ki} ⌜EŠ⌝.BAR-*šu*$_2$-*nu* ME.A GAR-[…] 15 15 *u* GI? ⌜x⌝ 3O 2 2 *u* MEŠ DI? ⌜x⌝ [					
(Number Row)	[1;54]	1;53	1;52	1;51	1;5O	[1;49]

Reverse: Cancer

(Initial Omen)	[… ^{d}]*dele*]-⌜*bat*⌝ NU GUB-*iz* ⌜KI⌝.[MIN] ⌜AN.GE$_6$⌝ ^{d}*ṣal-bat-a*-[*nu …] [… AN].⌜GE$_6$⌝ *šal-pu*$_2$-*ti*$_3$ KUR SU.⌜BIR$_4$⌝^{ki} ⌜KUR⌝ SU.BIR$_4$^{ki} ḫul […] [… PA$_5$].⌜MEŠ⌝ SAḪAR DUB.MEŠ AŠ.TE KUR SU.BIR$_4$^{ki} ZI-*aḫ* ⌜x⌝ […] […] ^{giš}APIN *a-la-la ina* KUR DU$_3$.A.BI KU$_5$-*is* SU.GU$_7$ *ina* UN.⌜MEŠ⌝ […] […] ⌜KUR⌝ SU.BIR$_4$^{ki} *na-mu-šu*$_2$ *i-ḫar-*⌜*ru*⌝-*ub* KI.MIN *na-me-e i-rap-pu-*⌜*ud*⌝ […] […] ⌜x x DU⌝ *a-na* LUGAL ⌜KUR uri⌝^{ki} *u* UN.MEŠ-*šu*$_2$ SILIM-*mu u meš*-[*ru-u*						
(Labels)	{labels}: ^{d}SAG.ME.GAR						
(Headings)	^{mul}PA.⌜BIL.SAG⌝	^{mul}SUḪUR.MAŠ$_2$	^{mul}GU.LA	^{mul}AŠ.GANA$_2$	^{mul}LU$_2$.ḪUN.GA	MUL.MUL ^{mul}GU$_4$.⌜AN.NA⌝	[^{mul}MAŠ.MAŠ] [^{mul}SIPA]
(Material Row)	[…]	[…]	[E$_2$ ^{d}NIN].⌜GIR$_2$.SU⌝ ⌜^{giš}⌝*dup-ra-an* ⌜^{u_2}⌝*ak-tam* [^{na_4}]⌜*mar-ḫal-lu*$_4$⌝	⌜E$_2$ ^{d}MAŠ⌝ ⌜^{giš}x⌝ ^{u_2}*kam*$_2$-*kad*$_2$-*du* ^{na_4}*mar-ḫa-lu*$_4$	KIŠI$_2$^{ki} ^{giš}MA.NU ⌜^{u_2}⌝NAM.TI.LA ^{na_4}TIR.AN.NA	e$_2$ ID$_2$ ^{giš}⌜x⌝ ^{u_2}⌜KUR⌝.[RA] ^{na_4}⌜AN.BAR⌝	[…] [^{giš} …] [^{u_2}] ⌜x x⌝ ^{na_4}NIG$_2$.BUR$_3$.BUR$_3$

(Row C)	[...]	[...]	[...] NU E_3 [*di*]-*nu la* ⌜*bi*⌝-*ki-ti*$_3$	$ŠA_3$.$ḪUL_2$ *ana* MUNUS-*šu*$_2$ TE-*ḫe* *be-ra-tu*$_2$ ZUKUM	*ana* 30 *u* 20 *liš-ken* *la i-tam-ma*	*ṣal-tu*$_4$ *la* ⌜*iṣ*⌝-*ṣa-al* *ana di-nim* ⌜E_3⌝	SAG NA NA AN x BAR ^{d}UTU DAB-*su*
(Row B)	[...]	[...]	*u*$_4$-*um* UR.SAG GAL-*u*$_2$ ^{d}AMAR.UTU ⌜*u*⌝ ^{d}*nin-urta*	*u*$_4$-*um* ^{d}*iš-tar* *be-let* KUR.KUR *u* ^{d}AMAR.UTU LUGAL	*u*$_4$-*um* BAD KA_2 EN GAL-*u*$_2$ ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta*	[*u*$_4$-*um*] DINGIR IRI ⌜UR⌝.[SAG] ⌜GAL⌝-[*u*] ^{d}⌜NIN⌝.[URTA] BAD ⌜KA_2⌝	*u*$_4$-*um* DINGIR IRI ^{d}30 ^{d}UTU *u* ^{d}NERGAL ⌜EZEN MAŠ.MAŠ⌝
(Row A)	[...]	[...]	E *u* PA_5 [*nu*] ⌜SI.SA_2⌝ [^{d}*ṣal*]-⌜*bat*⌝-*a-nu* [KUR_4]-⌜*ma*⌝ [...]	KI $PIŠ_{10}$ SI.SA_2 ŠE.GIŠ.I_3 ZU_2.LUM.MA *ka-si-i*$_2$ [*ana*] ⌜^{d}⌝*dele-bat* [*u* ^{d}]⌜GU_4.U_4⌝ [...]	KI GANBA SUM.SIKIL ŠE.BAR.RA *ana* $^{<d>}$SAG.UŠ ^{mul_2}BABBAR SIG.SIG-⌜*ma*⌝ *ana* ^{d}*ṣal-bat*-⌜*a*⌝-[*nu*] ⌜ZI⌝ [KUR_2] [...]	*ana* ⌜^{d}⌝[GU_4.U_4] RA [GU_3 ^{d}IŠKUR] GAL.[ME] ⌜*ana*⌝ [^{d}*ṣal-bat-an-nu*] [...]	[...]

3.6.3.3 Translation

Obverse: Gemini

(Headings)	[Sagittarius]	Capricorn	Aquarius	[Pisces]	[Aries]	[Pleiades], Taurus

(Material Row)	[...]	Šeriga-temple, sea myrtle?, *amīlānu*-plant, turquoise.	Temple of Sumuqan, *mēsu*-tree, *ašqulālu*-plant, *alallu*-stone.	Temple of Šamaš, *šāmiṭu*-wood, Venus-plant, *zalāqu*-stone, Fish-eye-stone.	Temple of [...], [...]-wood, [...]-plant, [...]-stone, [...]-stone.	[...]
(Row C)	[...]	He should not eat fish, eclipse of the sun, judgement favorable.	He should not ride a boat, he should prostrate to Ea.	He should go for judgement, (with) a woman favorable, going out to a field (or) meadow will go well.	Judgement not favorable, he should not prostrate to Šamaš, he should not see a snake.	[...]
(Row B)	[...]	Day of the field of Eridu, Anu and Ištar.	Day of the city god, the great hero Marduk and Ninurta.	Day of Ištar the lady of the lands, (and) Marduk the king.	Day of opening of the gate, the great lord Marduk and the hero Ninurta.	Day of the city god, the great hero Ninurta, opening of the gate.
(Row A)	[Sign of lightning, burn]ing [and thu]nder, [and gusts] of wind (these are) paired, [for] Venus [and Mercury, for] Jupiter [when it is bright, and Mars attack of an enemy, brightness]	[Sign of] rain and flood, for Venus and Mercury, for Mars and Saturn, rain will be cut off, [the land will wear matted hair, worry for the whole land.]	Dike and ditch will not be in order, Mars will be bright, and wheat and emmer will perish in the land; [for Saturn, for Venus, Mercury, and Jupiter] will go well.	Sign of riverbank, proper (harvest for) sesame, dates, mustard; for [Venus and Mercury, for Mars and Saturn no brightness], and Jupiter will be faint.	Sign of trade of ... barley, for Satu[rn, Jupiter will be faint; for Mars attack of an enemy and brightness,; for Mercury] rain [and] faintness.	For Mercury destruction, great thunder; for Mars lightning, earthquake; sign of destruction concerning the great ones, [great gusts of wind; for Mercury and Venus brightness.]
(Calculation Row)	...] those (stars) of Anu at sunset are 1, 1, those (stars) of Ea at [sunset are 30, 30 ... wi]th a sign of Amurru, their decision, you make a prediction. ...					
(Number Row)	[1;54]	1;53	1;52	1;51	1;50	[1;49]

Reverse: Cancer

(Initial Omen)	[... Ven]us does not stand, ditto, an eclipse Mar[s ...] [... ecl]ipse, ruination of Subartu, the land of Subartu evil ... [... ditch]es heaped up (with) earth, the throne of Subartu will be removed [...] [...] plough, work-song in the whole land will be cut off, famine amongst the people [...] [...] the land of Subartu its pasture will be deserted, ditto he will roam the pasture [...] [...] ... for the king of Akkad and his people peace and rich[es ...]						
(Labels)	{labels}: Jupiter						
(Headings)	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Pleiades, Taurus	[Gemini, Orion]
(Material Row)	[...]	[...]	[Temple of Nin]girsu, Juniper, *aktam*-plant, *marḫallu*-stone.	Temple of Ninurta, ...-wood, *kamgudu*-plant *marḫallu*-stone.	Kiš, *ēru*-tree, life-plant, rainbow-stone.	Temple of the river, ...-wood, mountain-plant, iron.	[...] ... NIG_2.BUR_3.BUR_3- stone
(Row C)	[...]	[...]	[...] should not go out, [judg]ement without sorrow.	Joy, he should approach his wife, he should step between.	He should prostrate to Sin and Šamaš, he should not swear an oath.	He should not engage in quarrel, he should go out for judgment.	... Šamaš will seize him.
(Row B)	[...]	[...]	Day of the great hero Marduk and Ninurta.	Day of Ištar lady of the lands and Marduk the king.	Day of the opening of the gate, the great lord Marduk and the hero Ninurta.	[Day of] the city god, the grea[t] he[ro] Nin[urta], opening of the gate.	Day of the city god, opening of the gate of Sin, Šamaš, Nergal, festival of Gemini.
(Row A)	[...]	[...]	Dike and ditch will [not] be in order, [M]ars [will be	Place of riverbank, proper (harvest for) sesame, dates,	Place of trade of barley ... barley; for Saturn, Jupiter will	For [Mercury] destruction, great [thunder]; for Mars	

			bright], and [...]	(and) mustard; [for] Venus [and] Mercury, [...]	be faint, for Mar[s] attack [of an enemy ...]		

3.6.3.4 Critical Apparatus

Obverse:

Material Row:

Capricorn: This cell is paralleled by the small fragment Text 5 (BM 39680), and the relevant cell on Text 11 (K 11151+). The emendation of U_2 here is based on the preserved text in Text 5 (BM 39680).

Aquarius This cell is paralleled again both in Text 5 (BM 39680) and Text 11 (K 11151+), although neither text preserves the entire cell.

Aries: Very little of this cell remains preserved on the tablet.

Row C:

Capricorn: Despite the fragmentary nature of the left edge of this cell, the restoration is fairly certain thanks to the duplicate cell on Text 11 (K 11151+).

Aquarius: This cell is paralleled on Text 11 (K 11151+). There are small orthographic differences between the two texts: $^{giš}MA_2.GUR_8$ vs. $^{giš}MA_2$ and $^{d}e_2$-*a* vs. ^{d}IDIM.

Pisces: This cell is paralleled on Text 4 (W 22554, 7a).

Aries: This cell is also paralleled on Text 4 (W 22554, 7a). This cell present a problem in the reading of DI NU ⌜ŠE⌝.[GA]. It can be difficult to know when to read DI NU ŠE.GA vs. *di-nu* ŠE.GA. The final syllable of *dīnu*, "judgement", is written both with *nu* and nu_3 throughout the micro-zodiac texts. At times, *dīnu*, is also just written logographically with the sign DI. For negation the particular NU is used almost exclusively. It might be simpler to expect that all writings of *di-nu* to instead be read as DI NU, assuming that the scribes would have differenti-

ated the two writings by using *nu*$_3$ when any ambiguity was present. But the parallel section of Text 4 (W 22554, 7a) has: *ana*! *di-nim* NU ⌜ŠE⌝.[GA], which clearly implies that for Gemini-Aries judgment, or "going out for" judgement was not favorable. This does however call into question the other writings if *di-nu* ŠE.GA throughout the rest of the micro-zodiac. The only direct support for the reading of *nu* for the second syllable of *di-nu* rather than NU, for negation, is a quotation from SpTU 2, 23 obverse line 9: "*di-nu* NU ŠE.GA".

Row B:

Capricorn: This cell can be completely restored from the composite text, with the small orthographic difference of ^{d}15 instead of ^{d}*iš-tar*.

Aquarius: This cell matches the composite text except for the addition of the city god.

Pisces: This cell matches the composite text except for the substitution of *be-let* instead of GAŠAN.

Row A:

Sagittarius: This cell is barely preserved on the tablet, but the few traces which remain allow for a relatively certain restoration of the contents. Interestingly, this cell seems to follow the preserved section on Text 1 (BM 42288+) rather than the composite text which is derived primarily from the Uruk material, Text 7 (VAT 7847+) in particular.

Aquarius: Outside of a few orthographic differences this section matches the composite text very closely.

Pisces: The beginning of this cell seems to have suffered from some textual corruption as it is missing a chunk of text: "BURU$_{14}$ *na-pa-aš$_2$* ^{d}NISABA".

Aries: The sign SUM in the second line of this cell is spread out more than usual making it look like two separate signs, ŠE and GAR. This seems to be a quirk of the handwriting of this scribe because it appears elsewhere in this text.

Calculation Row:

Because of the preserved width of the tablet only the middle of this section is preserved, but the formulaic nature of its structure allows for a confident identification. The final line seems to be part of the secondary Calculation Row which appears on a few other tablets, the meaning is not well understood.

Number Row:

The numbers at the bottom are easily restored and understood.

Reverse: Cancer

Initial Omen:

The preserved text on this tablet has congruencies with the relevant section of BM 36746. There are differences between the two texts, but many of these differences are clouded by the fragmentary nature of both texts, BM 36746 in particular.

Material Row:

Aquarius: This cell is paralleled by the relevant section of Text 6 (BM 38452) which is also fragmentary, and with the relevant cell of Text 11 (K 11151+) which helps restore the name of the temple in the first line.

Pisces: This cell parallels the same cell on Text 11 (K 11151+). However, the reading of the temple name is not certain. On both exemplars of this cell the name is very fragmentary, making reading difficult.

Gemini: This cell is very fragmentary, only the lower half is preserved.

Row C:

Aquarius: Only the right side of the cell is preserved on the tablet. However, a parallel section can be found on Text 11 (K 11151+) which is preserved only on the left side of the cell. The first section of both cells seems to match, but the later parts diverge, in as much as they are preserved.

Pisces: Interestingly, the exact contents of this cell are found in the cell Virgo-Pisces on Text 7 (VAT 7847+). The only difference is that Text 7 (VAT 7847+) includes the advice to "eat fruit", GURUN GU_7. The congruency between these two cells is not expected within the structure of the micro-zodiac. While the Row C material pulls from a relatively restricted set of advices or prohibitions, it is rare that two cells from different tables would be so similar.

Aries: This cell should be paralleled on Text 4 (W 22554, 7a), however, the two texts differ. Proper collation of Text 4 (W 22554, 7a) would allow for a better understanding of the relationships between these two cells.

Taurus: Unlike the previous cell, this cell and its parallel on Text 4 (W 22554, 7a) are in complete congruence.

Gemini: This cell is badly preserved, and the parallel section on Text 4 (W 22554, 7a) is similarly damaged.

Row B:

Pisces: Similar to the same section on the obverse the only difference between this cell and the composite text is the writing of *be-let* instead of GAŠAN.

Gemini: This cell parallels the composite text closely but has a few differences. It lacks both the BAD KA_2, "opening of the gate", and the *ma-a-šu*$_2$, "twins".

Row A:

Pisces: This cell is abbreviated in the same way as the on the obverse. Most likely because both Row A sections were copied off of the same source.

3.6.3.5 Commentary

Obverse:

Material Row:

Capricorn: The Ešeriga temple is attested twice in the topographical texts:

BM 34850:[255]

24' E_2.ŠE.RI.GA *bīt* ^{d}*ši-da-da* [*ša*$_2$ *dūr-šarru-kīn*]

K 8382:[256]

3 "E_2.ŠE.RI.GA E_2.KUR *ša*$_2$ BAD_3-2O-GIN^{ki}" "Ešeriga, the Ekur of Dūr-Šarru-kīn"

255 George 1992, no. 3 line 24'

256 George 1992, no. 39 line 3

George's interpretation of the geographical range of the text is that it seems to be centered around to the local of ancient Akkad, this would place these temples in northern Babylonia.[257]

$^{giš}U_2.GIR_2.A.AB.BA$ must be a member of the plant family $^{giš}U_2.GIR_2$ (CAD A/II 408 *ašāgu*) which is well attested in the Hellenistic medical and incantation corpus. This is presumably an ocean variety of the same plant, which is otherwise not attested.

$^{NA_4}UGU.AŠ.GI_3.GI_3$ (*ašgikû,* CAD A/II 427) is closely related with the stone in the previous cell on Text 5 (BM 39680) which is not preserved on this text.

Aquarius: The temple of Sumuqanm, ^{d}ŠAKAN, is unknown. However, it seems that the deity was associated with livestock. An omen from EAE 56 associates the darkening of Mars with the thriving of Sumuqan's livestock.[258]

mēsu-wood (^{giš}MES, CAD M/II 34 *mēsu* a) is well attested in the ritual corpus. It is also found in the Standard Babylonian version *Nergal and Ereškigal*, SpTU 1, 1, 1 and 5, as well as *Erra and Išum*, SpTU 1, 16: rev. I. 21 and 23. It must have been a malleable wood as it is used in other ritual contexts for carving images. (SpTU 1, 50: 11)

ašqulālu (^{u_2}LAL, CAD A/II 452) is attested in the Hellenistic medicinal corpus. A late version of *šammu šikinšu* gives this entry for *ašqulālu*: "Its name is *ašqulālu*-plant. [...] for illness

257 George 1992, 40–41

258 TCL 6, 16, rev 49, tablet of Nidintu-Anu, son of Anu-belšunu, S.E. 137.

of frost, *heat stroke*, and sorcery." (SpTU 3, 106: obv. 18) It also appears near the end of Plant List 3.[259]

alalû, (CAD A/I 329) is poorly attested in the Late Babylonian period, Thompson includes it in his study of stones.[260]

Pisces: We might expect Pisces to associated with Sippar, the city of Šamaš. This writing of *šāmiṭu,* with an initial $šu_2$ is unattested (CAD Š/I *šāmiṭu*). The Venus-plant appeared under Aries-Scorpio. $^{na_4}ZALAG_2$ appears under Aries-Libra. The association between Pisces and the fish-eye-stone (*īn nūni*, $^{na_4}IGI.KU_6$, CAD N/II 340 *nūnu*) seems obvious.

Row C:

Capricorn: The prescription to not eat fish is found in other hemerologies. It does not seem to be associated with the later part of Simānu (III). For an eclipse of the sun, the Babylonian Almanac preserves for the 20th of Simānu an eclipse of either the moon or sun depending on the exemplar. This would seem to match up well with the location of the cell for Capricorn in the Major sign Gemini. Finally, the designation of this cell as "favorable", ŠE.GA, for judgement, *dīnu*, is a common trope found throughout the hemerologies.

Aquarius: The advice not to ride a boat has good parallels in both the Babylonian Almanac and the Offering Bread Hemerology. Both preserve this prescription for the later part of Simānu (III), 21st and 23rd, respectively. Prostration to Ea is attested in the hemerologies but cannot be placed in Simānu specifically.

259 Finkel 2000, 187

260 Thompson 1936, 159–160

Pisces: A favorable outcome with a woman is well attested for the end of Simānu as well. The Babylonian Almanac preserves this outcome for the 24th, 26th, and 27th, of Simānu. Crossing, BAL, is an activity of concern during Tašrītu in the Hemerology of Nazimaruttaš on the 6th of Tašrītu, but I can find no parallel for it going well in Simānu.

Aries: The 29th of Simānu is unfavorable in court according to the Babylonian Almanac.

Row B see the composite text and commentary.

Row A see the composite text and commentary.

Reverse:

Initial Omen: The association of Cancer with Subartu fits within the paradigm of zodiac triplicities.[261] The later part of this initial section is paralleled by BM 36746.[262]

Material Row:

Aquarius: Juniper (*duprānu,* CAD D 189) is well attested in medicinal texts, primarily through the use of its resin. The *aktam*-plant often appears with *atā'išu*-plant present in Aries-Libra (CAD A/I 282 *aktam*). The *marḫallu*-stone (CAD M/I 279) is attested as a charm in medical texts, and it appears in the next cell as well.

Pisces: The *kamkadu*-plant is well attested in medical and magical texts (CAD K 123 b).

Aries: Kiš is not associated with Aries in the astral-geography texts.[263] For the *ēru*-tree see Aries-Cancer. "Life-giving plant", *šammi balāṭu* is not well attested in the Late Babylonian cor-

261 Rochberg-Halton 1984, 121

262 Rochberg-Halton 1984, 134

263 Steele 2015b, 214

pus. Rainbow-stone is not attested, but it must have been a multicolored stone: one text makes mention of a garment ornamented in rainbows, which might hint at a small decorative element (manzât, CAD M/I 230).

Taurus: The *nīnû*-plant (^{u_2}KUR.RA, CAD N/II 241 c) is well attested in medical and ritual texts, it also appears on both Plant List 1 and 3.[264] *parzillu* is attested as a stone used in medical and ritual texts (CAD P 215 2).

Gemini: *pallišu* appears under Aries-Virgo.

Row C:

Aquarius: Presumably a judgment without weeping is favorable. The 16th of Dûzu in the Babylonian Almanac is favorable in court.

Pisces: Joy, and favorability with a woman are both given for the 22nd of Dûzu in the Babylonian Alamanc which matches this cell very closely.

Aries: Prostration before Sîn and Šamaš is a common theme in the Prostration Hemerology, but does not contain this prescription for the end of Dûzu (IV). The Babylonian Almanac recommends not swearing an oath for the 25th of Dûzu.

Taurus: Not quarreling and favorability in court are probably related. The Babylonian Almanac has the 27th as a day which is favorable in court.

264 Finkel 2000, 185, 187

Gemini: This cell is difficult to read on both exemplars of this section. The mention of Šamaš here suggests something to do with a judgement, and the Babylonian Almanac for the 29th of Dûzu is favorable in court.

Row B see the composite text and commentary.

Row A see the composite text and commentary.

3.6.4 Text 4: W 22554, 7a

Museum Number: W 22554,7a
Dimensions: not measured.
3.6.4.1 Description

This tablet was edited in SpTU IV as number 167. My interpretation of the text switches the obverse and reverse. The obverse contains part of the micro-zodiac table for the Major sign Gemini and the reverse contains part of the table for Cancer. The left edge of the tablet is preserved on both sides and when combined with the material in Row B allows for an exact identification of the location of this fragment in the micro-zodiac series (the last column being the sign before the Major sign governing the entire table). While I was not able to obtain a photograph of this tablet, much less colate the actual object there are a few comments worth making about its physical appearance. The cells in the table are separated by incised lines. However, on the obverse of the tablet there are a couple lines in which the scribe wrote over the border of the cell and used the colon marker to serve as an artificial boundary between the contents of the two cells.

After the number row on the reverse, there is a final section of text that is very poorly understood. This might be similar to the obverse of VAT 7847+, where after the micro-zodiac tables there is a large multi-columned section of glosses and omen excerpts.

3.6.4.2 Transliteration

Obverse: Gemini

	(Pisces)	(Aries)	(Taurus)
(Calculation Row)	⌜x⌝ 38 18 *u* meš ⌜x⌝		
(Row B)	[*u*$_4$-*um* ^{d}]⌜*iš*⌝-*tar* [GAŠAN] KUR.KUR *u* ^{d}AMAR.UTU LUGAL	*u*$_4$-*um* BAD KA$_2$: EN GAL-*u* ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta* :	*u*$_4$-*um* DINGIR ⌜IRI UR⌝.[SAG] GAL-*u* ^{d}MAŠ BAD KA$_2$
(Row C)	⌜*ana*⌝ *di-nim* DU-*ku* ⌜GAŠAN ŠE⌝.[GA ...]	: *ana*! *di-nim* NU ⌜ŠE⌝.GA ^{d}utu ⌜NU *uš*!⌝-*ken* MUŠ ⌜NU IGI⌝	*ṣal-tu*$_4$ *la* ⌜*i-ṣa-al*⌝ ⌜*la*⌝ *i-*⌜*tam-mu*⌝
(Number Row)	[1;51]	[1;50]	⌜1;4⌝[9]

Reverse: Cancer

	(Aries)	(Taurus)	(Gemini)
(Calculation Row)	⌜IRI.MEŠ⌝ *an-nu-*⌜*tu*$_2$⌝ [⌜^{mul_2}ALLA⌝ GISKIM! KUR SU.BIR$_4^{ki}$ EŠ.BAR-⌜*šu*$_2$-*nu* ME⌝-[*a*		
(Row B)	*u*$_4$-*um* BAD KA$_2$ EN GAL-*u* ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta*	*u*$_4$-*um* DINGIR IRI UR.SAG GAL-*u* ^{d}maš : BAD KA$_2$	*u*$_4$-*um* ⌜DINGIR IRI⌝ BAD KA$_2$ ⌜*ma-a-šu*$_2$⌝ ^{d}30 ⌜^{d}20⌝ *u* ^{d}⌜U.GUR EZEN MAŠ⌝.[MAŠ]
(Row C)	30 *u* NUMUN UB ⌜x⌝ ME	*ṣal-tu*$_4$ *la* *i-ṣa-al* *ana* ⌜DI⌝ E$_3$	SAG ⌜NA AN ^{d}AMAR.UTU AN⌝ ^{d}UTU ⌜DAB-*su*⌝
(Number Row)	[1;41]	1;40	1;3⌜9⌝
(Calculation Row 2)	] ⌜x⌝ E : ZALAG A A ⌜ZA x⌝] ⌜x⌝ UM ⌜ZI x⌝] ⌜x⌝		

3.6.4.3 Translation

Obverse: Gemini

	(Pisces)	(Aries)	(Taurus)
(Calculation Row)	...		
(Row B)	[Day of] Ištar [lady] of the lands and Marduk the king.	Day of the opening of the gate, the great lord Marduk and the hero Ninurta.	Day of the city god, the great he[ro] Ninurta, opening of the gate.
(Row C)	He should go for judgement, (with) women favo[rable ...]	For judgement not favorable, he should not prostrate (to) Šamaš, he should not see a snake.	He will not engage in a quarrel, he will not swear.

(Number Row)	[1;51]	[1;50]	1;4[9]

Reverse: Cancer

	(Aries)	(Taurus)	(Gemini)
(Calculation Row)	[...] these cities [...] [...] Cancer (with) a sign of Subartu, their decision, a prediction [...]		
(Row B)	Day of the opening of the gate, the great lord Marduk and the hero Ninurta.	Day of the city god, the great hero Ninurta, opening of the gate.	Day of the city god, opening of the gate, the twins, Sin and Šamaš, and Nergal, the festival of Gemini.
(Row C)	30 ...	He will not engage in a quarrel, he should go out for judgement.	... Marduk ... Šamaš seizes.
(Number Row)	[1;41]	1;40	1;39
(Calculation Row 2)	...		

3.6.4.4 Critical Apparatus

Obverse: Gemini

Calculation Row:

The standard nature of the calculation row should make this fragmentary section of the tablet relatively easy to restore. However, the traces do not seem to line up well with the preserved sections of text from other Gemini tables, BM 34572 in particular.

Row B:

Pisces: Despite the fragmentary nature of this cell, the contents are easy to restore from the composite text.

Aries: The scribe uses the colon twice here to serve as a boundary marker between cells with the contents runs over the incised lines of the tablet. Once the colon is used in the first line, essentially where the incised line of the tablet would have been. The second time the

colon is placed a full sign width into the next cell separating the last sign of this cell from the line in the next cell.

Row C:

Pisces: Despite the fragmentary nature of this cell it can be restored mostly from the parallel cell on BM 34572.

Aries: Here again the scribe used the colon mark to artificially differentiate the contents of the two neighboring cells. In this case the first line of the previous cell ran into this cell. The contents of this cell can be restored from BM 34572.

Number Row:

While very little is preserved of this row, the schematic nature of the Number Row also for a confident reading of the traces at the bottom of the tablet as the final digit for Gemini.

Reverse: Cancer

Calculation Row:

The reading of the first line of this section is relatively clear. The second line presents a few problems. This last section of the calculation row can have two variants, one with *it-ti* GISKIM placed between the Major sign name and the land, and one without. The signs here preserve a GISKIM but no *it-ti*. The sign read as ALLA could instead be read as *ti*. Which would place the Major sign name slightly to the left beyond the break. Otherwise this section follows the standard Calculation Row text .

Row B:

Gemini: The restoration of the end of this cell is from the composite text.

Row C:

Aries: Despite the fragmentary nature of this cell, the top right corner is relatively clear. However, it does not seem to parallel the same section from BM 34572. Differences between the Babylon and Uruk version of the same table are well documented in this corpus, but these two cells differ quite substantially.

Taurus: In contrast, this cell parallels the material from BM 34572 almost exactly, substituting a logographic writing of DI instead of *di-nim*.

Gemini: This cell is quite fragmentary and runs on to the edge. The parallel section from BM 34572, while completely preserved, is not much help in making sense out of this cell.

Number Row:

The last two numbers align with the expected values of the Number Row for Cancer.

Extra Row:

The material beneath the number row is fragmentary and difficult to read. One possible explanation for the material in this section, is that it is a series of glosses similar to the large section preserved beneath the Leo table on the obverse of VAT 7847+.

3.6.4.5 Commentary

Obverse:

Row B see the composite text and commentary.

Row C:

Pisces: See Text 3 (BM 34572)

Aries: See Text 3 (BM 34572)

Taurus: The Babylonian Almanac is conflicted about the end of Simānu. The 28th and 29th are both favorable and unfavorable in court. The contents of this cell, conflict and swearing could be related to an outcome of a court decision.

Reverse:

Calculation Row: The mention of Subartu in this row helps securely place this fragment within the larger micro-zodiac scheme. Subartu is associated with the 4th, 8th, and 12th months or signs.[265]

Row B see the composite text and commentary.

Row C:

Aries to Gemini: See Text 3 (BM 34572)

265 Rochberg-Halton 1984, 128, n. 50

3.6.5 Text 5: BM 39680

Museum Number: BM 39680, Baked in 1980
Dimensions: 2.5 x 3.3 x 2cm

3.6.5.1 Description

This small fragment preserves one complete cell of the Material Row and traces of the neighboring cells. It would be difficult to locate this piece within the larger series if not for the fact that it happens to exactly parallel part of the Material Row on Text 3 (BM 34572) and text 11 (K 11151+). These two sections allow us to place this small fragment into the Gemini table and with the wholly preserved cell under the minor sign Capricorn.

Additionally, the small script and surface suggest that this fragment was once part of the same tablet as Text 13 (BM 39788) and Text 6 (38452). While none of them physically join, the physical characteristics and ductus of all three fragments are remarkably similar. Generally the columns are three signs wide, while the script itself is very tight. At least two "firing-holes" are visible on the obverse of the tablet.

3.6.5.2 Transliteration

Obverse: Gemini

(Headings)	[^{mul}PA.BIL.SAG]	^{mul}SUḪUR].[MAŠ$_2$]	[^{mul}GU.LA]
(Material Row)	[^{x}] ⌜ki⌝ [^{giš} ⌜ur?⌝ [^{u_2}] ⌜su⌝ *u* [^{na_4}] ⌜x *u*?⌝ ⌜^{na_4}⌝AŠ.GI$_3$.GI$_3$	E$_2$ ŠE.RI.GA ^{giš}U$_2$.GIR$_2$.A.AB.BA ^{u_2}LU$_2$-*an* ^{na_4}UGU.AŠ.GI$_3$.GI$_3$	E$_2$ [^{d}ŠAKKAN$_2$] ^{giš}[MES] ^{u_2} [LAL] ⌜^{na_4}⌝ [*a-lal-*] ⌜*lu*$_4$⌝

3.6.5.3 Translation

Obverse: Gemini

(Headings)	[Sagittarius]	⌜Capricorn⌝	Aquarius
(Material Row)	... AŠ.GI$_3$.GI$_3$-stone	Šeriga Temple *sea-myrtle* *amīlānu*-plant *turquiose*	Temple of [Sumuqan] [*mēsu*]-wood [*ašqulālu*]-plant [*alal*]*lu*-stone

3.6.5.4 Critical Apparatus

Obverse:

Material Row:

Sagittarius: While little is preserved of this cell, the last material is readable. The Material Row sections seem to only include four ingredients each, a place, a tree, a plant, and a stone, thus making the last material here a stone.

Capricorn: This section directly parallels the same cell in Text 3 (BM 34572) and Text 11 (K 11151+).

Aquarius: While little is preserved of this cell on this fragment, the parallel section on Text 3 (BM 34572) allows for the full restoration of this section.

3.6.5.5 Commentary

Obverse:

Material Row:

Sagittarius: ^{na_4}AŠ.GI$_3$.GI$_3$, (*ašgigû*-stone), is well attested both in the lexical tradition and in rituals (CAD A/2 *ašgikû*). It occurs six times on the late medical text SpTU II 22, along with other stones. This plant has a clearly related material written with a prefixed "UGU" that appears in the next cell of the Material Row. These two writings for what must be similar plants

can be found in other texts as well, often located close to one another. Both SpTU 2 50 0 1 and BM 132097[266] have the two terms directly next to each other: "... ^{na_4}AŠ.GI$_3$.GI$_3$ ^{na_4}UGU.AŠ.GI$_3$.GI$_3$ ...".

Capricorn: See Text 3 (BM 34572+) for commentary.

Aquarius: See Text 3 (BM 34572+) for commentary.

266 Geller 1988, 22

3.6.6 Text 6: BM 38452

Museum Number: BM 38452 (80-11-12, 335), Baked in 1979
Dimensions: 3.4 x 5 x 1.6 cm
3.6.6.1 Description

Small fragment of the Cancer side of a tablet. Probably joins with Text 5 (39680) and Text 13 (39788). This shows that there were clearly two copies of the Gemini/Cancer tablet circulating in Babylon. In contrast to the above mentioned texts, Text 3 (BM 34572) is clearly different in style.

3.6.6.2 Transliteration
Obverse: Not preserved.

Reverse: Cancer

(Headings)	[^{mul}]$\lceil$GIR$_2\rceil$.TAB	[^{mul}PA]$\lceil$BIL$\rceil$.SAG	[^{mul}]$\lceil$SUḪUR.MAŠ$_2\rceil$	[^{mul}GU.LA]
(Material Row)	$\lceil$E$_2\rceil$ ^{d}*en-lil$_2$* ^{giš}]$\lceil$ŠUR$\rceil$.MIN$_3$] $\lceil$x$\rceil$	E$_2$ ^{d}*e$_2$-a* $^{giš.šim}$GIR$_2$ ^{u_2}LI.LI $\lceil^{na_4}\rceil$BABBAR $\lceil$DA$\rceil$	E$_2$ ^{d}ŠUL.PA.E$_3$.A ^{giš}SAG AN.BAR ^{u_2}TAL$_2$.TAL$_2$ ^{na_4}*a-lal-lu$_4$* ^{na_4}ZA.GIN$_3$	[...] $\lceil$x$\rceil$ [$^{giš}\lceil$*dup*$\rceil$-*ra*-$\lceil$*nu*$\rceil$ ^{u_2}*ak-tam* ^{na_4}*mar*-$\lceil$*ḫal*$\rceil$-[*lu$_4$*
(Calculation Row)	] $\lceil$ŠU$_2\rceil$.A 1;50 1;$\lceil$50$\rceil$ [27;]$\lceil$30 *ina*$\rceil$ [^{d}UTU E$_3$.A			

3.6.6.3 Translation
Reverse: Cancer

(Headings)	Scorpio	[Sa]gittarius	Capricorn	[Aquarius]
(Material Row)	Temple of Enlil, cypress ...	Temple of Ea, myrtle, LI.LI-plant,	Temple of Šulpaea, (head) iron-tree?, *uriyānu*-plant,	[...] juniper, *aktam*-plant,

		white-stone, ...	*alallu*-stone, lapis-lazuli.	*marḫa*[*lu*]-stone.
(Calculation Row)	...] setting 1;50 1;50 [... ... 27];30 at [sunrise ...			

3.6.6.4 Critical Apparatus

Reverse:

Material Row:

Scorpio: This cell has a parallel on Text 11 (K 11151+), which helps restore the beginning of the otherwise badly preserved section.

Sagittarius: This cell is also paralleled on Text 11 (K 11151+). The final sign after ^{na_4}BABBAR is clearly DA but its reading is unclear.

Aquarius: This cell is paralleled on Text 3 (BM 34572), and in a very fragmentary state on Text 11 (K 11151+).

Calculation Row:

The two numbers preserved here allow us to place this tablet within the micro-zodiac series in one of two places, Taurus or Cancer. Thankfully, Text 11 (K 11151+) preserves the Material Row parallels mentioned above which securely place this fragment in Cancer.

3.6.6.5 Commentary

Scorpio: The resin of cypress is well attested in medical texts (CAD Š/III 352 *šurmēnu* c 4').

Sagittarius: Myrtle, $^{giš.šim}$GIR$_2$, appears under Aries-Virgo. I can only one reference to a plant named LI.LI.[267] I wonder if this is a corruption or reduplication of ^{giš}LI, *burāšu*, juniper.

267 SB Ura 17 line 63, MSL X, 85.

However, it appears three different times in the micro-zodiac texts, which suggests that it is a secure plant name at least within the micro-zodiac corpus. It might also be identified with *liligû*, normally written UKUŠ$_2$.LI.LI.GI (CAD L 186 *liligû*). ^{na_4}BABBAR is probably a writing for *pappardilû* (^{na_4}BABBAR.DIL) which is well attested in medical and ritual texts (CAD P 108 *pappardilû* d). *pappardilû* appears on Stone List 1.[268]

Capricorn: The writing of iron, *parzillu*, AN.BAR, is not attested with the GIŠ determinative. For iron see Text 3 (BM 34572) under Cancer-Taurus. However, the writing present here is not a scribal error as it also appears on Text 11 (K 111151+) under the same cell. *urânu* (^{u_2}TAL$_2$.TAL$_2$) is well attested in the medical corpus (CAD U/W 206 *urânu*). *alallu* stone appears under Gemini-Aquarius. Lapis lazilu (*uqnû*, ^{na_4}ZA.GIN$_3$), is used in medical and ritual texts (CAD U/W 200 *uqnû* 1.c).

Aquarius: See Text 3 (BM 34572) for commentary.

268 Finkel 2000, 183

3.6.7 Text 7: VAT 7847 + AO 6448

Museum Number: VAT 7847 and AO 6448
Dimensions:
3.6.7.1 Description

This text formed the basis of Weidner's study of the Micro-zodiac material. The two sides of this tablet present two nearly fully preserved micro-zodiac tables for Leo and Virgo respectively. The complicated process by which this tablet made its way into western museums resulted in the tablet being split into two pieces, presumably to increase the price, as each piece now has one drawing on it. This means that the Leo image is in Berlin, while the Virgo image is in Paris. The break between the two luckily occurs in a relatively stable part of the text which has made restoration easier.

Because of the strictly schematic nature of some parts of the micro-zodiac table, this table has been invaluable for establishing a composite text by which other versions of the micro-zodiac can be compared. This is not to say that this tablet, or the Uruk tradition in general served as the model for the other tablets, but rather that because this is the best preserved of the series, it serves as a good benchmark with which to compare other exemplars.

The obverse of the tablet also preserves an interesting six-column section of text not related to the micro-zodiac table directly. Instead, it seems to collect quotes from lexical lists, and titles of compositions that might have been relevant for the scribe working on the micro-zodiac texts. One section of the text, ii. 10 - iii. 8, was commented on by Schuster for its connections to Aa = *naqû*.[269] Civil further added to the understanding of the relationship between

269 Schuster 1938, 252–254

the section and the series Aa = *naqû,* in MSL 14.[270] Civil, noted that many of the lines were very similar to incipits of tablets from Aa. He suggests that the list could be read as a list of lessons about the lexical series, rather than a true list of incipits.

270 Civil, Green, and Lambert 1979, 155

3.6.7.2 Transliteration

Obverse: Leo

(Prayer)	[*ina a*]-⌜*mat*⌝ ^{d}60 *u an-tu$_4$ lis-lim*											
(Initial Omen)	[DIŠ 30 *ina* ^{mul}UR.GU.LA AN.GE$_6$] ⌜GAR⌝-*ma* EN.NUN *ig-mur u* $^{tu_{15}}$SI.SA$_2$ DU *ina* AN.GE$_6$-*šu$_2$* ^{d}SAG.ME.GAR NU GUB ^{mul}UDU.IDIM.SAG.UŠ *u$_2$ lu* ^{d}*ṣal-bat-a-nu ina* ^{mul}LU$_2$.ḪUN.GA$_2$ *u$_2$* ⌜*lu$_2$*⌝ [*ina* ^{mul}pa.bil.sag] [*u$_2$-lu ina*] ⌜^{mul}AŠ.GANA$_2$⌝ GUB-*iz* KI.MIN *ina* AN.GE$_6$-*šu$_2$* TUR$_3$ NIGIN-*ma* ^{mul}LUGAL *ina* ŠA$_3$-*šu$_2$* GUB-*iz a-na* GISKIM *an-ni-ti* LUGAL URI^{ki} *me-ser$_2$ dan-nu* IGI-*ma* : DAB^{bat}-*su*-⌜*ma*⌝ [...] [*ina* AŠ].⌜TE⌝ KUR URI^{ki} *uš-tal-pat na-mu-šu$_2$* BIR.MEŠ UN.MEŠ SU.GU$_7$ *dan-nu* IGI.MEŠ ŠEŠ ŠEŠ-*šu$_2$ ru-u$_8$-a ru-u$_8$-a-šu$_2$ ina* ^{giš}TUKUL *u$_2$-šam-qat* 2 ME MU.MEŠ *ina* AŠ.TE KUR URI^{ki} [...] [...] GI!.MEŠ DINGIR.MEŠ <*ina*> SU KUR BAD.MEŠ KI.MIN *a-na* UN.MEŠ KU$_5$.MEŠ UN.MEŠ BARA$_2$.MEŠ-*ši-na* TAG$_4$.MEŠ ARḪUŠ *u* SILIM.MEŠ TIL KU$_5$.MEŠ ^{d}*en-lil$_2$ a-na* KUR *a-na* MUNUS.ḪUL *u$_2$-ša$_2$-ri* KUR URI⌜^{ki}⌝ [...]											
(Labels)	{imagery} labels: ^{d}SAG$_3$.ME.GAR ^{mul}UR.GU.LA ^{mul}MUŠ											
(Headings)	^{mul}UR.A	^{mul}AB.SIN$_2$	^{mul}⌜GIŠ⌝.RIN$_2$	^{mul}GIR$_2$.TAB	^{mul}⌜PA.BIL⌝.SAG	^{mul}SUḪUR.MAŠ	^{mul}GU.LA	^{mul}AŠ.GANA$_2$	^{mul}LU$_2$.ḪUN.GA$_2$	^{mul}MUL.MUL ^{mul}GU$_4$	^{mul}⌜^{mul}⌝[SIPA]	^{mul}⌜^{mul}⌝[MAŠ.MAŠ]	[^{mul}AL.LUL]
(Material Row)	E$_2$ ^{d}[...] [^{giš}] ⌜x⌝ [x] ⌜x⌝ [...] [...] ⌜x⌝ [...] ⌜x⌝	⌜E$_2$.KUR⌝ [...] ⌜x⌝ *šam-nu* ^{giš}ESI ^{u_2}NAM.TI.LA ^{na_4}SAG.GIL.MUD	SIG$_4$ E$_2$ ^{d}⌜*iš-tar*⌝ ^{giš}ASAL$_2$ ^{u_2}*a-<ra>-ri-a-nu* ^{na_4}AMAŠ.MU$_2$.A	{erasure} SIG$_4$ UNUG^{ki} ^{giš}*dup-ra-nu* ^{u_2}<*ši*>-*im-ra-nu* ^{na_4}NIR$_2$	LI.DUR E$_2$.AN.NA ^{giššim}GIR$_2$ U$_2$ DU$_{10}$.GA ^{na_4}NIR$_2$	E$_2$ ^{d}*a-nun-na-ki* ^{giš}KIN$_2$ ^{u_2}GIR$_2$.TAB ^{na_4}*mu-ši-tu$_2$*	E$_2$ ^{d}NIN.GIŠ.ZI.DA ^{giš}MES DINGIR ^{u_2}MUŠ.KA.TAR ^{na_4}*kur-gar-ra-nu*	E$_2$ U$_4$.RI$_2$.IN ^{giš}KUR.RA ^{u_2}*si-ḫa* ^{na_4}BAL	NIBRU^{ki} E$_2$.KUR ^{giš}EŠ$_{22}$ ^{u_2}A.ZAL.LA$_2$ ^{na_4}AN.ZAḪ	E$_2$ ^{d}*a-*⌜*ru$_6$*⌝ ^{giš}ŠE.GIŠ.I$_3$ ^{u_2}LI.⌜LI⌝ ^{na_4}*eš$_3$-me-*⌜*ku*⌝	[...]	[...]
(Calculation Row)	[3;20] ⌜^{mul}⌝UR.GU.LA ḪA.LA AN.TA *ša$_2$* ^{d}SAG.ME.GAR *ina* ^{d}UTU ŠU$_2$.A 1;40 1;40 *šu-ut* ^{d}*a-nu$_3$ ina* ^{d}UTU ŠU$_2$.A 50 50 *šu-ut* ^{d}*e$_2$-a ina* ^{d}UTU ŠU$_2$.A 25 KI IRI.MEŠ *an-nu-tu$_2$ ina* ^{mul}UR.GU.LA KUR URI ⌜^{ki} EŠ.BAR⌝ [GAR-*nu* ME-*a* GAR-*an*]											

(Calculation Row 2)	⌜3;2(0) A.RA$_2$ 15 5(0) *a-na* MU.MEŠ LUGAL⌝ […] ⌜3;2(0)⌝ A.RA$_2$ 15 5(0) 5(0) nigin$_2$-*rat* ^{d}2(0) *an-na-a* NIGIN$_2$-*rat ša*$_2$ ^{d}3(0) *u* ^{d}2(0) […]											
(Row A)	⌜KI NIG$_2$ E$_3$ IZI.ŠUB⌝ [*u*] ZI KUR$_2$: KI ŠU$_{14}$ UM [*u*] U$_4$.DA ^{d}*ṣal-bat-a-nu* [*ana*] MUL$_2$ *ḫi-pi*$_2$ E$_3$ 3.2(0) ⌜^{d}⌝*ṣal-bat-a-nu* ZI KUR$_2$ *dan-nu* EREN$_2$ GAL KUR$_4$-*ma*	⌜KI SI.SA$_2$⌝ BURU$_{14}$ *na-pa-aš*$_2$ ^{d}NISABA SILIM-*me* ^{munus}PEŠ$_4$.ME KI SUM.SIKIL ŠE.BAR.RA GANBA KI EŠ.BAR KUR ELAM.MA^{ki} KI AN.TA.LU$_3$ *ana* ^{d}*dele-bat u* ^{d}GU$_4$.U$_4$-*ma*	KI EŠ.BAR GANBA DU$_3$.A.BI KA NU GI A.RA$_2$ *la*$_3$ SI.SA$_2$ ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* kur$_4$-*ma* ^{d}SAG.UŠ KUR$_4$-*ma*	KI *ri-*⌜*ba* ZI KUR$_4$⌝ IZI.ŠUB *u* ^{im}GU$_2$ ^{d}GU$_4$.U$_4$ KUR$_4$-*ma* ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma* MUNUS.KUR$_4$.ME GAL$_2$.ME	[KI IZI.ŠUB *qi*$_2$-*mi-tu*$_2$] *u* ⌜GU$_3$ ^{d}⌝ [IŠKUR] ŠEŠ.ME *ana* ^{d}*dele-bat u* ^{d}GU$_4$ *ana* ^{mul_2}BABBAR *ki-ma* KUR$_4$-*ma* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ KUR$_4$-*ma*	[KI ŠEG$_3$ *u* ILLU] ⌜*ana* ^{d}*dele-bat u* ^{d}GU$_4$.U$_4$⌝ *ana* ^{d}*ṣal-bat-a-nu u* ^{d}SAG.UŠ ŠEG$_3$ *u* ILLU KU$_5$ KUR *ma-la-a* IL$_2$ *na-zaq* KUR DU$_3$.A.BI	[E *u* PA$_5$ NU SI.ME ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma*] ^{še}GIG *u* ^{še}ZIZ$_2$.A.AN *ina* KUR ZAḪ$_2$ *ana* ^{d}SAG.UŠ *ana* ^{d}*dele-bat* ^{d}GU$_4$.U$_4$ *u* ^{mul_2}BABBAR SI.SA$_2$.ME	[KI PIŠ$_{10}$ SI.SA$_2$ BURU$_{14}$ *na-pa-aš*$_2$ ^{d}NISABA SI.SA$_2$ ^{giš}ŠE.GIŠ.I$_3$] ⌜ZU$_2$.LUM.MA *ka-si-i*⌝ *ana* ^{d}*dele-bat u* ^{d}GU$_4$ *ana* ^{d}*ṣal-bat-a-nu u* ^{d}SAG.UŠ NU KUR$_4$.ME ^{mul_2}BABBAR SIG.SIG-*ma*	[KI GANBA SUM.SIKIL] ŠE.BAR.RA *ana* ^{d}SAG.UŠ ^{mul_2}BABBAR SIG.SIG-*ma* *ana* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ KUR$_4$-*ma* *ana* ^{d}GU$_4$ ŠEG$_3$ SIG.SIG.<<SIG>>-*ma*	[*ana* ^{d}GU$_4$.U$_4$ RA-*iṣ*] GU$_3$ ^{d}IŠKUR *ana* ^{d}*ṣal-bat-an-nu* IZI.ŠUB *ri*$^{!}$-*ba* KI RA UGU GAL.ME ZI TU$_{15}$ GAL *ana* ^{d}GU$_4$: ^{d}*dele-bat* KUR$_4$-*ma*	⌜KI GANBA SUM.SIKIL⌝ ŠE.BAR.RA *ri-ba* IZI.ŠUB ḪI.GAR KI GIŠKIM$^{!}$ *u* EŠ.BAR KI *ri-ba dan-nu* SU.GU$_7$ *dan-nu* GURUN DU$_3$.A.BI	KI ⌜ŠEG$_3$⌝ ZI TU$_{15}$ LA$_2$-⌜*al*⌝ [*še-im*] EŠ.BAR *i*$_2$-*dig-lat u*$^{!}$ *pu-rat sip-par*^{ki} LARSA^{ki} ^{d}ID$_2$ ID$_2$ ^{d}NIN.GIR.SU UR.SAG ^{d}*nin-urta*
(Row B)	⌜*u*$_4$-*um*⌝ BAD KA$_2$ E$_2$.KUR [^{d}]⌜5(0) *u a-na*⌝ [^{d}*a-nun-na*]-*ki* [A.MEŠ] ⌜BAL-*qi*$_2$⌝	*u*$_4$-*um* BAD KA$_2$ ^{d}3(0) *u* ^{d}15 *ana* ^{d}3(0) *u* ^{d}15 *na-mir-tu*$_2$	*u*$_4$-*um* BAD KA$_2$ ^{d}3(0) ^{d}2(0) ^{d}15 ^{d}*a-nu* ^{d}5(0) ^{d}*e*$_2$-*a u* UR.SAG ^{d}NIN.GIR$_2$.SU	*u*$_4$-*um* <BAD> KA$_2$ ^{d}*al-la-tu*$_4$ *u* UR.SAG GAL ^{d}NERGAL	*u*$_4$-*um* UR.SAG GAL-*u* ^{d}PA.BIL.SAG EN GAL ^{d}*nin-urta*	*u*$_4$-*um* AŠ.IKU *eri-du*$_{10}$ ^{d}*a-nu*$_3$ *u* ^{d}*iš-tar*	*u*$_4$-*um* UR.SAG GAL-*u* ^{d}AMAR.UTU *u* ^{d}*nin-urta*	*u*$_4$-*um* ^{d}*iš-tar* GAŠAN KUR.KUR ^{d}AMAR.UTU LUGAL	*u*$_4$-*um* BAD KA$_2$ EN GAL-*u* ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta*	*u*$_4$-*um* DINGIR IRI UR.SAG GAL-*u*$_2$ ^{d}*nin-urta* BAD KA$_2$	*u*$_4$-*um* DINGIR IRI BAD KA$_2$ *ma-a-šu*$_2$ ^{d}3(0) ^{d}UTU ^{d}NERGAL EZEN MAŠ.MAŠ	*u*$_4$-*um* DINGIR IRI ^{d}UTU DI.KU$_5$ KUR *u* ^{d}ŠUL.PA.E$_3$.A BAD KA$_2$

(Row C)	[AB.ŠE]. ⌜GE.DA⌝ [...] ⌜x⌝ ḪA	GURUN GU_7 ŠE AŠ.$GANA_2$ BIR.BIR *di-il-ḫu*	*ša-ḫa-aṭ* MUŠ KI.MIN *ša-ḫa-aṭ* GIR_2.TAB	*ṣal-tu*$_4$ KU_5 DINGIR *lu* NA DINGIR lu *iš-tar* MUŠ	*ana* SILA NU E_3 DI NU ŠE.GA	AB.ŠE.GE.DA $^{d}e_2$-*a u* ^{d}AMAR.UTU *liš-ken u lik-ru-ub-*⌜*šu-nu*⌝	*ana* SILA NU E_3 *ni-gu-tu*$_2$ *liš-ku-un*	*di-nu*$_3$ *ma-gir ana* ^{d}UTU *liš-ken* ID_2 NU BAL *ana* E_2 A.ME NU DU-*ku ṣal-tu*$_4$ NU DU_3	DI NU ŠE.GA MUŠ NU IGI	*ṣal-tu*$_4$ *si-ip-du* UZU GU_4 UZU MUŠEN NU GU_7	NU ŠE.GA *ṣi-i-tu*$_2$ *ana* ^{d}UTU NU *liš-ken*	*ana* ^{d}30 *u* ^{d}20! *liš-ken* UZU ŠAḪ NU GU_7
(Number Row)	1;50	1;49	1;48	1;47	1;46	1;45	1;44	1;43	1;42	1;41	1;40	1;39
(Extra)	1. EN_2 DINGIR *ḫi-pi*$_2$ *eš*$_4$*-ši* GA TUM GA 2. EN_2 *ḫi-pi*$_2$ *eš*$_4$*-ši* A GA 3. *e-nu-ma ḫi-pi*$_2$ *eš*$_4$*-ši u*$_3$ *lu ḫi-pi*$_2$ 4. ⌜x⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* IGI *ḫi-pi*$_2$ 5. ⌜x⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* KIN 6. ⌜x⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* GAR_3 MEŠ 7. ⌜x⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* ḪI TUM_3 GU 8. ⌜*ina* ^{iti}⌝BAR *ḫi-pi*$_2$ *eš*$_4$*-ši* U_4.DA GAL_2 9. ⌜ŠU GAR⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* GAR SA.GIG 10. ⌜x GIŠGAL⌝ *ḫi-pi*$_2$ *eš*$_4$*-ši* GIŠ ZI GAN_2 11. ⌜x⌝ ^{d}*a-nu ḫi-pi*$_2$ *eš*$_4$*-ši* BI PA PA BI	1. SAG : ⌜*pu*⌝-*tu*$_3$ 2. ^{lu_2}tuku : *ša-me* 3. E_{11} : *a-ra-du* 4. KA : *pu-u*$_2$ 5. ^{d}nanna : ^{giš}DA BI 6. ^{giš}$AŠ_4$: *as-lu*$_4$ 7. GU.DI.BIR : *nu-kur*$_2$*-ti* 8. *ṣal-tu*$_4$ *mit-ḫu-ṣu* : *pu-u*$_2$*-pu-u*$_2$ 9. ¶ NA.ME AD $NIGIN_2$ KU GAR UR GAR PEŠ AŠ 10. EN 2 11. ¶ U_4 : *im-mu* U_4.U_4 : *u*$_4$*-mu* 12. ¶ $^{ab}AB_2$: *ar-ḫu* 13. ¶ ŠAGAN : *šik-kat*$_2$: *ša*$_2$ $ŠIR_3$ <*za-ma*>*-ru* 14. ¶ $ŠU_2$: *sa-ḫa-pi* : *ša*$_2$	1. ¶ ḫum : *ḫa-ma-*<*šu*$_2$> 2. ¶ *bu-ru* : *a-ru-u*$_2$ 3. ¶ SIG_2 : *ši-ip-tu*$_4$ 4. ¶ KA : *ka-ka ḫi-pi*$_2$ 5. ¶ IB$^{!}$: *tu-bu-du-tu*$_4$ 6. ¶ *ku* : KU *na-du-u* 7. ¶ *ir* IR : *zu-u*$_2$*-tu*$_2$ 8. ¶ *ge-e* GE_6 : *mu-ši* – {horizontal ruling} – 9. *šu-pu-u*$_2$: *pa-la-ku* 10. ^{mul}AN.NA.ḪA.SIG.E.PAP 11. ^{mul_4}GIR_2.TAB *ana* $ŠA_3$ EŠ TU 12. ^{d}IŠKUR *ana* ^{giš}ḪAB 13. ^{mul}SAG_3.ME.GAR *ana* IGI ^{mul_2}MAŠ.TAB.BA.GAL.GAL	1. *ina* ^{iti}BAR AN SUR-*ri* 2. $AN.GE_6$ <<*ina*>> EN.NUN.UŠ.SA ILLU 3. 30 *ina* IGI.LA_2-*šu*$_2$ SI.MEŠ-*šu*$_2$ 4. ¶ *ina* ^{iti}BAR ^{d}UDU.IDIM KUR-*ḫa* 5. TU_{15} $ŠEG_3$ ILLU U_4 NE RA *ḫi-pi*$_2$ 6. DUB *ni-ṣir-tu*$_2$ AK DINGIR *ḫi-pi*$_2$ 7. ^{mul}AŠ.IKU MUL KUR *ḫi-pi*$_2$ 8. ^{mul}GIR_2.TAB *ana* KI 9. ¶ *ina* ^{iti}BAR ^{d}IŠKUR GU_3-*šu*$_2$ *ḫi-pi*$_2$ 10. AN-*e* NE.MEŠ 11. ^{mul_2}LU E^{ki} SAG.DU *ḫi-pi*$_2$ 12. BAR *ana* DINGIR *ḫi-pi*$_2$ 13. ¶ ⌜30⌝ *ina* ^{iti}BAR U_4 1-	1. TU_{15} KALA TA 20 *ana* TU_{15} MIN 2. ^{mul}$MAR.GID_2$.DA *ana* AN.TA.LU_3 3. ^{mul}*dele-bat ina* KASKAL *šu-ut* ^{d}EN.LIL_2 KUR-*ḫa* 4. ¶ ^{mul}MU.GID_2.$KEŠ_2$.DA ^{d}60 GAL-*u ša*$_2$ AN-*e* {blank line} 5. U_2 URU.AN.NA *ta-kal-maš* 6. *le-'a-a-at an-tu*$_4$ 7. *an-tu*$_4$ DAB-*at* 8. EN_2 NA NIG_2.ŠU ^{giš}TUKUL ^{giš}MA.NU 9. *ina* ^{iti}BAR U_4 1-KAM *ši-gu-u is-su* 10. ¶ NA *ina* GIR_3 *ina*	NU ŠE.GA *ṣi-i-tu*$_2$ *ana* ^{d}UTU NU *liš-ken*	1. *ana sa-ma-nu* I_3.NUN.NA 2. EN_2 ŠU.ZI.GA ŠU.ZI.GA 3. ¶ NA *li-ip-ti ina* SAG.DU-*šu*$_2$ 4. SA_5 TAG.MEŠ ¶ NA *lib*$_3$*-bu-šu*$_2$ SI.SA_2.ME 5. LUGAL NIG_2.ZI NU.$EŠ_3$ ^{d}EN.LIL_2.LA_2 6. DIRI BAR *ša*$_2$ U_2*-ma* GAR-*šu*$_2$ 7. ¶ NA $UŠ_2$.MEŠ IGI.IGI-*ru* 8. ¶ MUNUS $UŠ_2$.MEŠ MA MEŠ GIŠ NU KU_5.MEŠ 9. EN_2 SA ḪUL LU_2.BI LU_2.BI ⌜DA⌝ 10. ¶ NA NINDA GU_7 A$^{!}$

	12. *ḫal-ḫal* ḫi-pi$_2$ eš$_4$-ši ^{d}U LU 13. DIŠ ḫi-pi$_2$ eš$_4$-ši *a-bi-šu*$_2$ 14. SAG.KI ḫi-pi$_2$ eš$_4$-ši *u*$_2$-*lap-pat* 15. ⌜U$_4$.DA⌝ ḫi-pi$_2$ eš$_4$-ši x 16. [x] ⌜x⌝ ḫi-pi$_2$ eš$_4$-ši ḪAL 17. [x] ⌜AD NA⌝ ḫi-pi$_2$ eš$_4$-ši NA DI	IB ḫi-pi$_2$ tu tu 15. ¶ *ri-i* : *ra-mu-u*$_2$ 16. ¶ DU$_3$: PA UŠ GAR DU$_3$ la tum 17. ¶ IRI : *a-lu* 18. ¶ U ZI IZ MA MIN 19. ¶ NA AB BI LA2 : *um-mu*	14. GA.RAŠ *ša*$_2$ ^{d}EN.LIL$_2$ 15. TU$_{15}$ KALA TA $^{tu_{15}}$KUR 16. 31 3.3O ḫi-pi$_2$ 17. KI.MEŠ MUL *ša*$_2$ *ina* ŠA$_3$-*ši* 18. *e-nu-ma man-za-za ša*$_2$ ^{d}<x> ḫi-pi$_2$ 19. *ina* ^{iti}APIN *ina* ^{mul_2}GU.LA	KAM *ina* IGI.LA$_2$-*šu*$_2$ 14. ⌜^{mul}⌝UDU.IDIM *ina* MURUB$_4$ ZI ḫi-pi$_2$ 15. ¶ SAG$_3$.ME.GAR *ana* 3O DIM$_4$ 16. IZI.GAR TA ^{d}MUATI 17. IZI.GAR TA ^{d}UTU.E$_3$ *ana* ^{d}UTU ŠU$_2$.A 18. *ina* KI *ina* ^{iti}BAR U$_4$ 1-KAM ^{lu_2}TUR *a-lid* 19. *ina* ^{mul_2}RIN$_2$ GIŠ BAR ḫi-pi$_2$	*ka-le-e* A.ME 11. DIRI BAR NIG$_2$.ZU LA AN KAM 12. *u an-tu*$_4$ DAB-*at* 13. *e-nu-ma ne*$_2$-*pe-šu*$_2$ *ša*$_2$ 3O *ana* MAŠ$_2$.GE$_6$ 14. ^{im}GI$_3$.DA *reš-tu-u*$_2$ 15. KEŠ$_2$ DU$_8$ *u*$_3$ *i-da-a-tu*$_2$ 16. MUŠ GAR-*šu*$_2$ 17. 1 x ŠU.RI.A.BI 3O-AM$_3$	NAG-*ma* 11. ŠA$_3$ ⌜x⌝-*šu*$_2$ RA.MEŠ ḪU 12. ¶ NA IGI-*šu*$_2$ LU$_3$.LU$_3$ 13. *tab-nit* LU$_2$ UNUG^{ki} 14. ⌜UZU⌝ RI : IN SU 15. ⌜GURUN ^{giš}⌝KIRI$_6$ ⌜*tu-šar*⌝-*ra-aḫ*

Reverse: Virgo:

(Initial Omen)	[DIŠ 3O *ina* ^{mul}AB.SIN$_2$ AN.GE$_6$ GAR-*ma* EN.NUN *ig-mur u* $^{tu_{15}}$]⌜U$_{18}$⌝.LU : $^{tu_{15}}$KUR.RA ⌜DU⌝ [KAN$_5$-*šu*$_2$ ^{d}*dele-bat* NU IGI-*šu*$_2$ … ^{d}SAG.UŠ ^{d}*ṣal-bat-a-ni* …] [*ina*] ⌜^{mul}⌝[GU$_4$.]⌜AN⌝.NA *u*$_2$-⌜*lu*⌝ [*ina* ^{mul}SUḪUR].⌜MAŠ$_2$⌝ IGI AN.GE$_6$ *šal-pu*$_2$-⌜*ti*⌝ […KUR ELAM.MA^{ki} *ina … uš-tal*$_2$*-pat* NIG$_2$.ŠU.MEŠ-*šu*$_2$ NU SIG$_5$ 1-*niš* … LUGAL KUR ELAM.MA^{ki} *qa*$_2$-*du* IM.RI.A-*šu*$_2$ ŠUB-*ma* GAZ] ŠEŠ ŠEŠ-⌜*šu*$_2$ *ru-u*$_2$-*a ru-u*$_2$-*a*⌝-[*šu*$_2$ *ina*] ⌜^{giš}⌝TUKUL GAZ LUGAL ⌜URI⌝^{ki} ZI-*ma* LUGAL ELAM.MA^{ki} ⌜*ina* ^{giš}TUKUL⌝ […] ⌜ELAM.MA^{ki}⌝ [… (*kalmutu* or *šalputtu*) DU ŠEG$_3$.MEŠ *u* ILLU.MEŠ *ana* KUR ELAM.MA^{ki} KU$_5$.MEŠ *ana* LUGAL URI^{ki} *u*] UN.MEŠ ⌜KUR ELAM.MA^{ki}⌝ SU.GU$_7$ *dan-nu* IGI.MEŠ *a-na* LUGAL URI^{ki} *u* UN.MEŠ-*šu*$_2$ [ERIN$_2$.MEŠ-*šu*$_2$ SILIM-*mu* …]											
(Labels)	{imagery} labels: ^{mul}⌜UGA⌝^{mušen} ^{d}GU$_4$.U$_4$ ⌜^{mul}AB.SIN$_2$⌝											
(Headings)	^{mul}AB.SIN$_2$	^{mul}GIŠ.RIN$_2$	^{mul}GIR$_2$.TAB	^{mul}PA.BIL.SAG	^{mul}SUḪUR.MAŠ$_2$	^{mul}GU.LA	^{mul}AŠ.GANA$_2$	^{mul}LU$_2$.ḪUN.GA	MUL.MUL ^{mul}GU$_4$	^{mul}MAŠ.MAŠ ^{mul}⌜SIPA⌝	^{mul}AL.LUL	[⌜^{mul}UR⌝].GU.LA
(Material Row)	…]⌜^{ki}⌝	NIBRU^{ki}	*eri-du*$_{10}$ ^{ki}	ZABALAM$_2$(	E$_2$ ^{d}*iš-tar*	E$_2$ ^{d}GU.LA	IM^{ki}	IM^{ki}	IM^{ki} ^{giš}ESI	DU$_{10}$.GAR^{ki}	mu$_7$.mu$_7$ ^{ki}	E$_2$.NAM.ḪE$_2$

	U$_3$.SUḪ$_5$ ⌜giš⌝*dul-bi* ^{u_2}KUR.RA ⌜na$_4$⌝*aš-pu$_2$-u$_2$* $^{na_4.d}$LAMMA	^{giš}ASAL$_2$ ^{u_2}ḪAR.SAG ^{na_4}KUR-*nu* ^{na_4}ZA.GIN$_3$	^{šim}MAN.DU ^{na_4}*saḫ-ḫu-u* ^{na_4}DUR$_2$.MI.NA	ZA.MUŠ$_3$.ŠE Š$_2$!)^{ki} ^{giš}*šu-ši* ^{giš}EŠ$_{22}$ ^{na_4}ŠUBA ^{na_4}GIŠ.NU$_{11}$.GAL	^{giš}NU.UR$_2$.MA U$_2$-*ma* ^{u_2}LI.LI ^{na_4}NI.BA ^{na_4}*zi-bit* ^{na_4}PA	^{giš}NAM.TAR ^{giš}DIḪ$_3$ ^{u_2}*ṣa-ṣu-un-tu$_2$* $^{u_2.d}$DIM$_3$.ME ^{na_4}*pa-ru-tu$_2$* ^{na_4}GIR$_2$.TAB	^{giš}MA.NU ^{giš}*ur$_2$-an* ^{u_2}*ra-pa-du* ^{na_4}MUD ^{na_4}ZU$_2$.GE$_6$	^{giš}MES ^{giš}ŠENNUR ^{u_2}*kam-gu-du* ^{na_4}URUDU ^{na_4}⌜A.BAR$_2$⌝	^{u_2}*kur-ka-nu-u* ^{na_4}AN.NA ^{na_4}KU$_3$.BABBAR	^{giš}ŠUR.MIN$_3$ ^{giš}LI ^{u_2}*a-ra-an-<tu$_2$>* ^{na_4}SA.SA ^{na_4}GIG.MA.NU	^{giš}EREN ^{giš}BAL ^{na_4}BAL ^{na_4}*a-lal-lu$_4$* ^{u_2}KI^{d}IŠKUR ^{u_2}SILLIM.SAR	⌜e$_2$ x^{ki}⌝ ^{giš}*dup-ra-nu* ^{giš}⌜x x⌝ ^{na_4}*sa-a-ba* ^{na_4}PEŠ$_4$.ANŠE ^{u_2}KA.A.AB ^{u}PIŠ$_{10}$ ^{d}ID$_2$
(Calculation Row)	⌜3 ^{mul}⌝AB.SIN$_2$ *šu-ut* ^{d}EN.LIL$_2$ *ina* ^{d}UTU ŠU$_2$.A 1;30 1;30 *šu-ut* ^{d}*a-nu$_3$ ina* ^{d}UTU ŠU$_2$.A 45											
(Calculation Row)	⌜45⌝ *šu-ut* ^{d}*e$_2$-a ina* ^{d}UTU ŠU$_2$.A 22;30 *ina* ^{d}UTU E$_3$ 3 *ina* ^{d}UTU ŠU$_2$.A 1;30											
(Calculation Row)	[KI] IRI *an-nu-tu ina* KI ^{mul}AB.SIN$_2$ *it-ti* GISKIM KUR *elam-ma*^{ki} EŠ.BAR GAR-*nu* ME-*a* GAR-*an*											
(Row A)	[KI] ⌜SI.SA$_2$⌝ BURU$_{14}$ *na-pa-aš$_2$* ⌜^{d}⌝NISABA SILIM-*me* ^{munus}PEŠ$_4$.ME ⌜KI SUM⌝.SIKIL ŠE.BAR.RA ⌜GANBA⌝ KI EŠ.BAR [KUR] ⌜ELAM.MA^{ki}⌝ [KI AN.TA.LU$_3$]	KI EŠ.BAR GANBA DU$_3$.A.BI KA *la$_3$* GI A.RA$_2$ *la$_3$* SI.SA$_2$ ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* : [KUR$_4$-*ma* ^{d}SAG.UŠ KUR$_4$-*ma*]	KI *ri-ba* ZI KUR$_4$ IZI.ŠUB *u* ^{im}GU$_2$ ^{d}GU$_4$.U$_4$ KUR$_4$-*ma* ^{mul_2}BABBAR SIG.SIG-*ma* ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma* ⌜MUNUS.KUR$_4$.ME GAL$_2$.meš⌝	KI IZI.ŠUB *qi$_2$-mi-tu$_2$ u* GU$_3$ ^{d}IŠKUR *u* ZI TU$_{15}$ ŠEŠ.ME *ana* ^{d}*dele-bat u* ^{d}GU$_4$ *ana* ^{mul_2}BABBAR *ki-ma* KUR$_4$-*ma ana* ^{d}*ṣal-bat-a-nu* ⌜ZI KUR$_2$ KUR$_4$-*ma*⌝	KI ŠEG$_3$ *u* ILLU *ana* ^{d}*dele-bat u* ^{d}GU$_4$.U$_4$ *ana* ^{d}*ṣal-bat-a-nu* ^{d}SAG.UŠ ŠEG$_3$ *u* ILLU.ME KU$_5$.ME ⌜KUR *ma-la-a* IL$_2$⌝ [*na-zaq* KUR DU$_3$.A.BI]	E *u* PA$_5$ *la$_3$* SI.ME ^{d}*ṣal-bat-a-nu* KUR$_4$-*ma* ^{še}GIG *u* ^{še}IMGAGA *ina*(!tab) KUR ZAḪ$_2$ *ana* ^{d}SAG.UŠ ⌜*ana* ^{d}*dele-bat* ^{d}GU$_4$⌝ [*u* ^{mul_2}BABBAR SI.SA$_2$.ME]	KI PIŠ$_{10}$ SI.SA$_2$ BURU$_{14}$ *na-pa-aš$_2$* ^{d}NISABA SI.SA$_2$ ^{giš}ŠE.GIŠ.I$_3$ ZU$_2$.LUM.MA *ka-si-i ana* ^{d}*dele-bat u* ^{d}GU$_4$ [*ana* ^{d}*ṣal-bat-a-nu u* ^{d}SAG.UŠ] ⌜NU KUR$_4$⌝. [ME ^{mul_2}BABBAR SIG].⌜SIG-	KI GANBA SUM.SIKIL ŠE.BAR.RA *ana* ^{d}SAG.UŠ ^{mul_2}BABBAR SIG.SIG-*ma ana* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ KUR$_4$-*ma ana* ^{d}GU$_4$ [ŠEG$_3$ SIG.SIG-*ma*]	*ana* ^{d}GU$_4$.U$_4$ RA-*iṣ* GU$_3$ ^{d}IŠKUR *ana* ^{d}*ṣal-bat-an-nu be-nu* IZI.ŠUB *u ri-ba* KI RA UGU GAL.ME [ZI TU$_{15}$ GAL *ana* ^{d} GU$_4$: ^{d}*dele-bat* KUR$_4$-*ma*]	KI GANBA SUM.SIKIL ŠE.BAR.RA *ri-ba* IZI.ŠUB ḪI.GAR KI GIŠKIM$^{!}$ EŠ$^{!}$.BAR$^{!}$.ME *u* KI *ri-<ba> dan-nu* SU.GU$_7$ *dan-nu* [GURUN DU$_3$.A.BI]	KI ŠEG$_3$ *u* ILLU ZI TU$_{15}$ LA$_2$-*al še-im* EŠ.BAR *i$_2$-dig-lat u pu-rat sip-par*^{ki} *u* LARSA^{ki} ^{d}ID$_2$ ID$_2$ [^{d}NIN.GIR.SU UR.SAG ^{d}*nin-urta*]	KI NIG$_2$ E$_3$ IZI.⌜ŠUB⌝ *u* ZI KUR$_2$ KI *um-šu$_2$ u* U$_4$.DA ^{d}*ṣal-bat-*⌜*a*⌝-[*nu*] *ana* ^{mul_2}BABBAR NIG$_2$.E$_3$ ⌜3⌝. [20] *ana* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ *dan-*⌜*nu*⌝ ⌜EREN$_2$ GAL KUR$_4$-*ma*⌝

	ana ^{d}*dele-bat u* ^{d}GU$_4$-*ma*						*ma*⌉					
(Row B)	u_4-*um* BAD KA$_2$ ^{d}30 *u* ^{d}15 *ana* ^{d}30 *u* ^{d}15 *na-mir-tu*$_2$	u_4-*um* BAD KA$_2$ ^{d}30 ^{d}UTU ^{d}15 ^{d}*a-nu* ^{d}50 ^{d}*e*$_2$-*a u* UR.SAG ^{d}NIN.GIR$_2$.SU	u_4-*um* BAD KA$_2$ ^{d}*al-lat u* UR.SAG GAL ^{d}NERGAL	u_4-⌈*um*⌉ [UR.SAG GAL-*u*] ^{d}PA.BIL.SAG EN GAL ^{d}*nin-urta*	u_4-*um* AŠ.IKU *eri.du*$_{10}$ ^{d}*a-nu*$_3$ *u* ^{d}*iš-tar*	u_4-*um* UR.SAG GAL-*u* ^{d}AMAR.UTU *u* ^{d}*nin-urta*	u_4-*um* ^{d}*iš-tar* GAŠAN KUR.KUR ^{d}AMAR.UTU LUGAL	u_4-*um* BAD KA$_2$ EN GAL-*u* ^{d}AMAR.UTU *u* UR.SAG ^{d}*nin-urta*	[u_4-*um* DINGIR IRI] [UR.SAG GAL-u_2] ⌈^{d}⌉[*nin-urta* BAD KA$_2$] : ⌈x⌉	[u_4-*um* DINGIR IRI BAD KA$_2$] [*ma-a-šu*$_2$ ^{d}30 ^{d}UTU] [^{d}NERGAL EZEN MAŠ.MAŠ]	[u_4-*um* DINGIR IRI] [^{d}UTU DI.KU$_5$ KUR] [*u* ^{d}ŠUL.PA.E$_3$.A] [BAD KA$_2$]	[u_4-*um* BAD KA$_2$ E$_2$.KUR] [^{d}50 *u ana*] [^{d}*a-nun-na-ki*] [A.MEŠ BAL-*qi*$_2$]
(Row C)	*ka-liš* ŠE.GA ^{d}30 *u* ^{d}UTU *liš-kin ana* MUNUS-*šu*$_2$ ⌈TE⌉-[*ḫe*] ŠA$_3$.ḪUL$_2$	*di-nu*$_3$ *ḫi-pi*$_2$ *ana* ^{d}UTU ḫi-pi$_2$ UŠ TAK *ḫi-pi*$_2$	*ana* IGI-*ka ṣal-tu*$_4$ MUŠ GIR$_2$.TAB *u* IGI NU ⌈SIG$_5$⌉	*ana* ⌈*di*⌉-*nu*$_3$ NU E$_3$ ⌈*ṣal*⌉-*tu*$_4$ *iṣ-ṣa-al*	*ana* ^{d}*e*$_2$-*a liš-ken ana* ^{d}*e*$_2$-*a u* ^{d}IŠKUR KURUM$_6$-*su liš-ku-un*	*ka-liš* ŠE.GA *ni-gu-tu*$_2$ *liš-ku-un*	ŠA$_3$.ḪUL$_2$ *ana* MUNUS-*šu*$_2$ TE-*ḫe* GURUN GU$_7$ *be-ra-tu*$_2$ ZUKUM	*di-nu ma-gir* GA NU NAG *uš-ši* ^{d}30 *u* ^{d}20 GAR-*un*	*ṣal-tu*$_4$ ⌈x⌉ [A.MEŠ ⌈x⌉ [NU ŠU ⌈x⌉ [	[...]	[...]	[...]
(Number Row)	1;30	1;29	1;28	1;27	1;26	1;25	1;24	1;23	1;22	[1;21]	[1;20]	[1;19]
(Colophon)	TA UGU ^{giš}DA SUMUN-*bar* GABA-*ri* UNUG^{ki} SAR-*ma* IGI.TAB ⌈*ṭup*⌉-*pi* $^{m.d}$EN-*šu*$_2$-*nu* ⌈^{lu_2}⌉GALA ^{d}60 *ma-ru*$_3$ *ša*$_2$ ^{m}NIG$_2$.SUM.MU-^{d}60 *ma-ru*$_3$ ^{md}30-TI-ER$_2$ TIR-AN.NA^{ki} *qat*$_3$ $^{!\ m.d}$60-AD-GUR A-*šu*$_2$ ^{lu_2}UMBISAG U$_4$ ^{d}60 ⌈^{d}*en*⌉-[*lil*$_2$] [... ^{m}]⌈*an*⌉-*ti-'i-ku-su* ⌈LUGAL⌉ MUD ^{d}60 ^{d}*en-lil*$_2$ *u* ^{d}IDIM *ina šur-qa* NU TUM$_3$-*šu*$_2$											

3.6.7.3 Translation

Obverse: Leo

(Prayer)	[By the co]mmand of Anu and Antu, may it go well.											
(Initial Omen)	[An eclipse] occurs [when the moon is in Leo.] The first watch finishes and the north wind blows, during this eclipse Jupiter does not stand and Saturn or Mars stand in Aries or [Sagittarius] [or in] Pisces. Ditto. during this eclipse the moon is surrounded by a lunar halo and the King-star stands in it. For this sign: the king of Akkad will see strong difficulty : it will seize him ... [... the thr]one of land of Akkad will be plundered, its pasture scattered, the people will see strong hunger; a brother will defeat his brother, a friend his friend, with a weapon. 200 years on the throne of Akkad ... ... the gods will withdraw from the interior of the land, ditto, for the people, they will be cut off; the people forsake their cult diases, mercy and well-being will be completely cut off. Enlil will direct evil to the land, the land of Akkad ...											
(Labels)	{imagery} labels: Jupiter, The Lion, The Snake											
(Headings)	Leo	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	The Pleiades, Taurus	[Orion, Gemini]	[Cancer]
(Material Row)	Temple of [...]	Ekur ... oil, ebony life-plant *sangilmud*-stone	Bricks of Ishtar's temple poplar *arariānu*-stone *abasmû*-stone	Bricks of Uruk juniper *šimrānu*-plant chalcedony	again Eanna myrtle sweet-plant chalcedony	Temple of the Anunnaku *kiškanû*-tree scorpion-plant night-stone	Temple of Ningišzida *mēsu*-wood of the god ...-plant *kurgarrânu*-stone	The Urinnu temple mountain-tree wormwood belemnite	Nippur, Ekur almond-tree *azallû*-plant *anzaḫḫu*-glass	Temple of Aru sesame-tree ...-plant malachite	[...]	[...]
(Calculation Row)	[3;20] Leo, upper portion of Jupiter, at sunset 1;40, 1;40 those (stars) of Anu at sunset 50, 50 those (stars) of Ea at sunset 25, a sign of these cities Leo, the land of Akkad, [makes] a decision, [you make a prediction.]											
(Calculation Row 2)	3;20 times 15 is 50 for the years of the king ... 3;20 times 15 is 50, 50 the circumference of the sun this is the circumference of the moon and sun ...											
(Row A)	Place of victory,	Place of good	Place of a decision	Place of earthquak	[Place of lightning,	[Place of rain and	[Dykes and	[Place of the	[Place of onion	[... for Mercury	Place of onion and	Place of rain, gust

	lightning [and] attack of the enemy : sign of summer [and] the light of Mars [to] the star {broken} 3;20 Mars, attack of the enemy, strong troops when it is bright.	harvest, abundance of grain, well-being of pregnant women, sign of onion and barley trade, sign of decision of the land of Elam, sign of eclipse for Venus and Mercury.	of trade, speech is not true, the way is not straight, Jupiter is very weak, Mars is bright, Saturn is bright.	e, enemy attack, lighting and silt. Jupiter is very weak, Mars is bright, there will be hostilities.	conflagration], thun[der], pairing off, for Venus and Mercury, for Jupiter when it is bright, Mars, attack of the enemy when it is bright.	flood] for Venus and Mercury, for Mars and Saturn rains and floods will be cut off, the land will carry abundance, worrying of the whole land.	ditches will not be straight, Mars is bright], wheat and emmer will be destroyed, for Saturn, for Venus, for Mercury and Jupiter they will thrive.	riverbank, a thriving harvest, abundance of grain, thriving of sesame], dates and mustard, for Venus and Mercury and Mars and Saturn are not bright, Jupiter is very weak.	and] barley [trade], for Saturn and Jupiter are weak, for Mars attack of the enemy when bright, for Mercury rain when it is very weak.	destruction], thunder for Mars lightning and earthquake, sign of ... concerning the great-ones, onset of great wind, for Mercury and Venus when they are bright.	barley trade, earthquake, lightning, rebellion, sign of omens and decisions, sign of a strong earthquake, stron famine of all fruit.	of wind, scarcity of [barley], decision of the Tigris and Euphrates, Sippar, Larsa, the divine river, Ningirsu the warrior, Ninurta
(Row B)	Day of opening the gate of the Ekur, Enlil and for [Anunna] ki you should offer	Day of opening the gate of Sin and Ishtar, for Sin and Ishtar light.	Day of opening the gate of Sin, Shamash, Ishtar, Anu, Enlil, Ea, and the warrior	Day of opening the gate of Allatu and the great warrior Nergal.	Day of the great warrior Pabilsag, the great lord Ninurta.	Day of the field, Eridu, Anu, and Ishtar.	Day of the great warrior Marduk and Ninurta.	Day of Ishtar, the lady of the lands, Marduk the king.	Day of the opening of the gate of the great lord Marduk and the warrior Ninurta.	Day of the city god, the great warrior Ninurta, opening of the gate.	Day of the city god, opening of the gate, the twins Sin and Shamash, Nergal, festival of	Day of the city god, Shamash the judge of the land and Shulpae, opening of the gate.

	[water].		Ningirsu.								the Twins.	
(Row C)	[Favo]rable ...	Eat fruit, the Field, dispersal, confusion.	Attack of a snake, ditto attack of a scorpion.	Legal battle will be decided, god or man or goddess, snake.	Don't go out to the street, lawsuit is not favorable.	Favorable, He should prostrate himself before Ea and Marduk, and pray to them.	Don't go out to the street. He should make merry.	A lawsuit is favorable. He should prostrate before Shamash. Don't cross a river. Don't go to the water house. He should not start a legal battle.	A lawsuit is not favorable. He should not see a snake.	A legal battle, mourning. Don't eat ox or bird meat.	Not favorable, loss. Don't prostrate before Shamash.	Prostrate before Sin and Shamash. Don't eat pig meat.
(Number Row)	1;50	1;49	1;48	1;47	1;46	1;45	1;44	1;43	1;42	1;41	1;40	1;39
(Extra)	1. Incantation, DN *new break* ... 2. Incantation *new break* ... 3. when *new break* or *break* 4. ... *new break* see *break* 5. ... *new break* ... 6. ... *new break* ... 7. ... *new break* ... 8. In Nisannu (I) *new break* there is light		1. SAG : forehead 2. ^{lu_2}TUKU : creditor 3. E_{11} : to descend 4. KA : mouth 5. Nanna : its writing board 6. $^{giš}AŠ_4$: *aslu*-unit 7. GU.DI.BIR : enmity 8. Fighting a legal battle : squabble		1. ¶ ḪUM : to be paralyzed 2. ¶ *bu-ru* : to vomit 3. ¶ SIG_2 : wool 4. ¶ KA : *kāgu* *break* 5. ¶ IB : corner 6. ¶ *ku* : KU to throw 7. ¶ *ir* IR : sweat 8. ¶ *ge-e* GE_6 : night – {horizontal ruling} –		1. Mars flashes in Nisannu (I) 2. eclipse in the evening watch, flood 3. the moon at its appearance, its horns 4. ¶ in Nisannu (I) a planet rises 5. wind, rain, flood ... *break*		1. A strong wind from the sun to the north, ditto 2. The wagon to an eclipse 3. Venus rises in the path of Enlil 4. ¶ the Yoke, the great Anu of the sky {blank line}		1. for *samānu*-disease butter 2. Incantation hand-lifting, hand-lifting 3. ¶ a man's moles on his head 4. are red/covered and affected ¶ a man his diarrhea 5. just king, *nêsakku*-	

	9. ... new break Sa.gig 10. ... new break ... 11. ... Anu new break ... 12 *ḫalḫal*[*latu*-drum] new break ... and ... 13. ¶ new break his father 14. forehead new break it touches 15. heat new break ... 16. ... new break ... 17. ... new break ...	9. ¶ Someone, all, ... 10. second 11. ¶ U_4 : day $U_4.U_4$: days 12. ¶ AB_2 : cow 13. ¶ ŠAGAN : flask : concerning $ŠIR_3$ to sing 14. ¶ $ŠU_2$: to envelop : concerning ... break ... 15. ¶ *ri-i* : to throw 16. ¶ ... 17. ¶ IRI : city 18. ¶ ... 19. ¶ ... : mother	9. to break : to divide off 10. ... 11. Scorpio enters to the interior of the moon. 12. Adad for the madder 13. Jupiter facing the great twins 14. leek of Enlil 15. A strong wind from the east 16. 31 3;30 break 17. regions of the star of its interior 18. when the position of the gods break 19. in Arahsamnu (VIII) in Aquarius	6. tablet of secrets ... god break 7. Pisces reaches the star break 8. Scorpio to the place 9. ¶ in Nisannu (I) Adad his voice break 10. these (of) heaven 11. Aries in Babylon, the head break 12. ... for the god break 13. ¶ The moon in Nisannu (I) day 1, in its appearance 14. a planet in the middle ... break 15. ¶ Jupiter approaches the moon 16. lightning from Nabu 17. lightning from sunrise to sunset 18. in a sign in Month I day I a child is born 19. in Libra ... break	5. Plant uru.an.na = *maš-ta-kal* 6. Antu is powerful 7. Antu seizes 8. Incantation: a man, his goods, a weapon of *ēru*-wood 9. in Nisannu (I) day 1 he cries out 10. ¶ a man is keeping water in his feet 11. extra non-canonical, learning ... 12. and Antu seizes 13. when the ritual of sin for a dream 14. first long tablet 15. contracts, copies, written proof 16. a snakes appearance 17. ¶ dog? half is 30	priest of Enlil 6. extra, non-canonical of a plant's appearance 7. ¶ a man's blood is seen 8. ¶ a woman's blood does not cut off 9. Incantation: ... evil, that man, that man ... 10. ¶ a man eats bread and drinks water 11. ... 12. ¶ a man's eyes are troubled 13. offspring/creation of a man from Uruk 14. ... : ... 15. you make the fruit of the orchard splendid.

Reverse: Virgo

(Initial Omen)	[If the moon is eclipsed in Virgo and the evening watch finishes and the] south and east winds blow, [Venus is not visible... Saturn and Mars ...] [in] [Ta]urus or [in Capric]orn are visible, its eclipse... [Elam in ... will be destroyed, his possessions will be plundered, the king of Elam together with his family will be slaughtered]

	brother will kill brother friend his frie[nd with] a weapon. The king of Akkad will rise up, and (kill) the king of Elam with a weapon. Elam go to [ruin ... rain and flood in Elam will cease. For the king of Akkad] and his people, the land of Elam a strong famine. Visibility for the king of Akkad and his people and [well-being for his troops ...]											
(Labels)	{imagery} labels: The Raven, Mercury, The Furrow											
(Headings)	Virgo	Libra	Scorpio	Sagittarius	Capricorn	Aquarius	Pisces	Aries	Pleiadies, Taurus	Gemini, Shepherd	Cancer	[L]eo
(Material Row)	pine-tree plane tree, *nīnû*-plant jasper *lamassu*-stone	Nippur poplar saffron heamatite, lapis-lazuli	Eridu sedge *saḫḫû*-stone breccia	Zabalam liquorice, almond-tree *šubû*-stone alabaster	Temple of Ishtar pomegranate ...-plant, ...-plant *yānibu*-stone, *zibītu*-stone white coral	Temple of Gula *mandragora*, *baltu*-plant *ṣaṣuntu*-plant *lamassu*-plant *parūtu*-alabaster *zuqiqīpu*-stone	Karkara *ēru*-tree, fennel *rapādu*-plant blood-stone black flint	Karkara *mēsu*-tree, plum-tree *kamkadu*-plant copper, ...-stone	Karkara, ebony *kurkanû*-plant tin silver	Damru cypress, *burāšu*-juniper *arantu*-grass ... -stone *hereṣ ēri*-stone	mu_7.mu_7 cedar, *ballukku*-tree touchstone, *alallu*-stone *qudru*-plant seed-corn	Enamhe temple juniper, ... *sābu*-stone *biṣṣūr atāni*-seashell algae sulphur
(Calculation Row)	3 Virgo, those (stars) of Enlil at sunset are 1;30, 1;30, those (stars) of Anu at sunset are 45.											
(Calculation Row)	45 those (stars) of Ea at sunset are 22;30, at sunrise 3, at sunset 1;30.											
(Calculation Row)	[place] of these cities in the region of Virgo sign of sign of Elam establish a decision, you make a prediction.											
(Row A)	[Place] of good harvest, abundance of grain, well-being	Place of a decision of trade, speech is not true, the way is	Place of earthquake, enemy attack, lighting and silt.	Place of lightning, conflagration, thunder, pairing	Place of rain and flood for Venus and Mercury, for Mars	Dike and ditch will not be in order, Mars will be bright,	Place of the riverbank, a thriving harvest, abundanc	Place of onion and barley trade, for Saturn and	... thunder for Mars lightning and earthquak	Place of onion and barley trade, earthquake,	Place of rain, onset of wind ... decision of the Tigris and	Place of victory, lightning and attack of the enemy :

	of pregnant women, sign of onion and barley trade, sign of decision of the [land] of Elam, [place of eclipse] for Venus and Mercury.	not straight, Jupiter is very weak, Mars is [bright, Saturn is bright.]	Jupiter is very weak, Mars is bright, there will be hostilities.	off, for Venus and Mercury, for Jupiter when it is bright, Mars, attack of the enemy when it is bright.	and Saturn rains and floods will be cut off, the land will carry abundanc e, [worrying of the whole land.]	wheat and emmer will perish in the land, for Saturn, for Venus, for Mercury [and Jupiter they will go well.]	e of grain, thriving of sesame, dates and mustard, for Venus and Mercury [for Mars and Saturn] are not brig[ht, Jupiter is ve]ry weak.	Jupiter are weak, for Mars attack of the enemy when bright, for Mercury [rain when it is very weak.]	e, sign of ... concernin g the great-ones, onset of great [wind, for Mercury and Venus when they are bright.]	lightning, rebellion, sign of omens and decisions, sign of a strong earthquak e, stron famine of [all fruit.]	Euphrates, Sippar, Larsa, the divine river, [Ningirsu the warrior, Ninurta]	sign of summer and the light of Mar[s] to the star {broken} 3;[20] Mars, attack of the enemy, strong troops when it is bright.
(Row B)	Day of opening the gate of Sin and Ishtar, for Sin and Ishtar light.	Day of opening the gate of Sin, Shamash, Ishtar, Anu, Enlil, Ea, and the warrior Ningirsu.	Day of opening the gate of Allatu and the great warrior Nergal.	Day of the [great warrior] Pabilsag, the great lord Ninurta.	Day of the field, Eridu, Anu, and Ishtar.	Day of the great warrior Marduk and Ninurta.	Day of Ishtar, the lady of the lands, Marduk the king.	Day of the opening of the gate of the great lord Marduk and the warrior Ninurta.	[Day of the city god, the great warrior Ninurta, opening of the gate.]	[Day of the city god, opening of the gate, the twins Sin and Shamash, Nergal, festival of the Twins.]	[Day of the city god, Shamash the judge of the land and Shulpae, opening of the gate.]	[Day of opening the gate of the Ekur, Enlil and for Anunnaki you should offer water.]

(Row C)	Completely favorable. He should prostrate before the Sin and Shamash. He should approach his wife with joy.	Lawsuit {break} to Shamash {break} ... {break}	For you: legal battle snake, scorpion, and a bad eye	He will not go to a legal battle, He will continuously fight a legal battle.	He should prostrate to Ea He should place offerings before Ea and Adad.	Completely favorable, he should make merry.	Joy, he should approach his wife, eat fruit, step on the dividing walls.	Favorable judgment, He should not drink milk. He should place the foundations for Sin and Shamash.	Legal battle ... water ... not ...			
(Number Row)	1;30	1;29	1;28	1;27	1;26	1;25	1;24	1;23	1;22	1;21	1;20	1;19
(Colophon)	Written and check from an old writing board, copy from Uruk. Tablet of Anu-Belšunu, *kalû* priest of Anu, son of Nidintu-Anu, son of Sin-leqi-unnninni, The Tiranaean. Hand of Anu-aba-uter, his son, scribe of *Enūma-Anu-En*[*lil*] Antiochus, king. he who reveres Anu, Enlil and Ea shall not take it away through theft.											

3.6.7.4 Critical Apparatus

Obverse: Leo

Initial Omen:

This initial section of the tablet closely parallels the Leo section of BM 36746+ published by Rochberg.[271] For the most part the two texts are very close, Rochberg has already noted many of the differences between the texts.[272] One particular difference is the number of years, presumably the king, will not return to the throne of Akkad. This text has 2 ME MU.MEŠ, whereas BM 36746+ has only 3. Of particular interest are the two *ḫi-pi* glosses in the last line of this section on BM 36746+, line 9, which indicate a third source for this section of text independent from VAT 7847+ which is not broken at these points.

Material Row:

Leo: The first item in this cell was read by Weidner as E_2 AN.[NA]. However, more likely is that this is the beginning of a temple name: E_2 ^{d}[x]. The rest of this cell is too fragmentary to make out any other material items. The reading of this place name hinges on the interpretation of the Material row for Sagittarius, where E_2.AN.NA also appears but prefixed with two signs either meaning "second", or "center". In the case of the former meaning, we should read E_2.AN.NA in this cell. In the case of the later, we can assume that this is a broken temple name.

Sagittarius: The first item of this cell is clearly written but difficult to interpret. The meaning here affects the understanding of the first element of the Leo cell above. The signs in

271 Rochberg-Halton 1984, 134

272 Rochberg-Halton 1984, 138–139

question are LI and DUR, it could be read either as *li-tur*$_2$ "second", or LI.DUR "center".[273] Neither reading has many attestations in the Seleucid corpus, but *li-tur*$_2$ is the only example in the corpus (although used in earlier periods). Therefore, the reading LI.DUR seems more likely, this is inline with other modifying features before the place name, such as SIG$_4$ E$_2$ ^{d}*iš-tar* "brickwork of the temple of Ištar" earlier in Libra. However, the LI.DUR (*abunnatu*) of a building is otherwise unattested.

Aquarius: The reading of ^{u_2}MUŠ.GU$_3$.TAR is difficult to interpret. There is a bird, MUŠ.GU$_3$/GU$_7$^{mušen}, and a plant ^{u_2}KA.MUŠ.GU$_7$.E. Perhaps the reading of this plant is related to these two terms.

Calculation Row:

This section is one of the better preserved Calculation Rows across the micro-zodiac therefore it serves as the primary model for the others. The initial number is broken, however the scheme makes it easy to restore the correct number, 3;20.

Calculation Row 2:

The second calculation row also appears on Text 1 (BM 42288+) and perhaps in an abbreviated form on Text 3 (BM 34572).

Row A: The Row A material from this text served as the basis for the composite text. Therefore, the differences with other sections are noted in the critical apparatus for other texts. Many of the sections are damaged at the beginning or near the beginning because of

273 This reading was proposed by Marvin Schreiber (personal communication).

the large break which separates the two fragments, VAT 7847+ and AO 6448. The restorations made here are relatively certain based on the sections from other tablets.

Virgo: At the end of this cell the signs GU_4 and UD, for Mercury, are written almost as a ligature, but the meaning is clear.

Aries: The extra repetition of SIG at the end of this cell seems to be a simple mistake. I can find no clear parallel for SIG following $ŠEG_3$, which might have explained the extra SIG sign.

Taurus: The colon marker at the end of this cell would seem to separate the final clause off from the rest of the content of the cell. There is no need for the colon to demarcate the cell boundaries as in Text 4 (W 22554, 7a).

Cancer: The connective *u* after the Tigris river is written with the EŠ sign, This might be a simple error deriving from the EŠ.BAR written directly above it.

Row B: Like Row A directly above this material served as the basis for the composite text, therefore any differences are noted in the critical apparatus of the other text editions.

Row C:

Leo: This left side of this cell is broken away leaving only the ends of the two lines. The first is easily restorable, but the second line escapes understanding.

Virgo: The meaning of AŠ.$GANA_2$, the Field or Pisces, is not understood here, but the signs are clearly preserved.

Capricorn: Up until this cell all the previous cells contained two lines. This is the first to go over onto a third line. The scribe clearly intended these cells to be confined to two lines as there is a horizontal line that is present after the second line in many of the cells of Row C on this side of the tablet. However, despite the scribe's intentions, after this cell, three more cells of Row C go on longer than two lines, and the horizontal ruling is absent from the right half of the tablet. It seems that the initial intention was to keep the Row C material at only two lines, which were initially ruled with a horizontal ruling. However, after Capricorn went over two lines subsequent cells were allowed to as well.

Cancer: The writing of 30 for 20 here is clearly a scribal mistake, Text 11 (K 11151+) Taurus-Cancer preserves the correct 30 and 20 in Row C.

Number Row: The numbers on this tablet are off by ten digits. The scribe writing this row somehow got confused and started counting down from 1;50, when he should have started with 1;40. The 1;40 number can be verified by its use in the Calculation Row in the middle of tablet. Also, shown in the introduction to this chapter, the expected value for Leo in the overall scheme is 1;40.

Extra: This section is anomalous to the micro-zodiac texts. The content must have come from another source outside of the micro-zodiac tradition, most likely a list of glosses and incipits. The pattern of breakage, as reconstructed with the *ḫīpi* glosses suggests that this section is divided into six vertical columns. Within these six columns there is one horizontal line dividing the third column roughly in half. In the fifth column a blank line divides the top

quarter of the column from the bottom three quarters. These various division suggests that the source text or texts were modified to fit within the two dimensional space left between the end of the micro-zodiac table and the end of the tablet. The horizontal line in the third column might then represent the division between the obverse and reverse of a source text. Another possibility is that there are different source texts and the horizontal line and potentially the blank line in the fifth column represent division between different source texts. In any case, the transmission of this section of text onto this tablet was not perfect as marked by the numerous *ḫīpi eššu* glosses. These are located curiously in the middle of the lines of the first column. They must represent a significant amount of damage on the source text, and judging from their position the break must have occurred in the middle of the tablet, if it was a single column tablet, or in the middle of the column, if it was a multiple column tablet. In the fourth column a number of the lines end with a *ḫīpi* gloss which probably represent damage to the right edge of a tablet. However, the damage in this case would be located two tablets earlier, on the source text for the source text transmitted here.

Reverse: Virgo

Initial Omen:

This initial section parallels the Virgo section of BM 36746+ mentioned above. The two sections are very similar, although a few differences stand out. In the fourth line of the initial omen the phrase LUGAL ELAM.MA^{ki} is paralleled by KUR NIM.MA in line 13' of BM 36746+. Other-

wise, these two sections are very similar, albeit this section is particularly damaged so comparison is difficult.

Material Row:

Virgo: The left edge of this cell is damaged which makes restoration of the first line, the place, difficult. The reading of U_3.SUḪ$_5^{ki}$ difficult to interpret, the use of the name of a tree, *ašūḫu*, with the determinative KI seems slightly confused.[274] It occurs in what is normally the location of a place in the Material Row.

Scorpio: The second line of this cell omits the wood item.

Sagittarius: The writing of the city of Zabalam here is slightly corrupted, with ŠEŠ$_2$ instead of UNUG as the final sign.

Calculation Row:

The Calculation Row on the Virgo side of the tablet is written in a highly regularized manner. Signs and numbers are written so that they line up with signs and numbers on the lines above and below. The strict formatting continues in the way the text of the Calculation Row is split over three rows each separated by incised horizontal lines. Interestingly, there is no second Calculation Row on this side of the tablet.

Row A: Similar to Row A on the Leo side of the tablet these cells served as the basis for the composite text. Fortunately the Virgo side of the tablet generally preserves the first part of the cell, which is often lost of the Leo side.

274 It might be related to a entry found in SB Ura: giš-u-suḫ$_5$-ki-šar$_2$-ra (MSL 5, 99).

Row B: Like Row A directly above this material served as the basis for the composite text, therefore any differences are noted in the critical apparatus of the other text editions.

Row C:

Libra: The last line of this cell is difficult to interpret because of the fragmentary nature not of the current cell but of the source material, which can be seen by the *ḫīpi* glosses at the end of each line. From their position we might then reconstructed that this section was copied off of a copy of the Scorpio table, where the Libra column would be the right most column on the tablet and suffer damage on its right edge. Broken glosses are also less likely in Rows A and B because those Rows are more standard throughout the series and thus easier to restore.

Pisces: Almost the exact contents of this cell are found in the Cancer-Pisces Row C cell of Text 3 (BM 34572). The cell in Text 3 only lacks the advice to "eat fruit", GURUN GU_7. As mentioned in the critical apparatus of Text 3, this congruency is not expected in the Row C material of the micro-zodiac texts.

Taurus: Despite the loss of the right edge of this cell most of the signs are readable. However, the text is completely missing after this cell as the tablet is very damaged.

Colophon:

The choice to center the first line of the colophon under the fifth column is interesting. The final two lines of the colophon are left justified. Perhaps there difference in content, copying method versus scribal pedigree which influenced the positioning of these two sections.

3.6.7.5 Commentary

Obverse: Leo

Initial Omen: This omen is paralleled on BM 36746.[275] The association of Leo with the North wind and Akkad fits within the paradigm of zodiac triplicities.

Material Row:

Virgo: Nippur, the location of the Ekur, is not associated with Virgo in the astral-geographical texts.[276] Ebony (^{giš}ESI, CAD U/W 326 *ušû* 2) is used in medical recipes. Ebony appears twice with ^{u_2}NAM.TI.LA in the text SpTU 2, 23. *saggilmud*-stone (^{na_4}SAG.GIL.MUD) is used in medical texts (CAD S 24 *saggilmud* b).

Libra: The first element of this cell could refer to the brickwork of the Ištar temple in Uruk, or one of many other temples to Ištar. Poplar, (^{giš}ASAL$_2$) is well attested as a building material, but only rarely attested in ritual texts where usually the ash of the tree is used (CAD Ṣ 109 *ṣarbatu* d 2'). *arariānu*-plant is well attested in the medical corpus (CAD A/II *arariānu* b) and also appears in Plant List 1 where the spelling is also somewhat confused.[277] *abašmu*-stone appears written syllabically under Aries-Leo.

Scorpio: Uruk is not associated with Scorpio in the astral-geography texts.[278] For *duprānu* see under Cancer-Aquarius. *šimrānu*-plant is very poorly attested, but is related to the *šimru*-

275 Rochberg-Halton 1984, 134

276 Steele 2015b, 214

277 Finkel 2000, 185

278 Steele 2015b, 215

plant (CAD Š/III 8 *šimrānu*). The *šimru*-plant appears under Pisces-Cancer. *ḫulālu*-stone (^{na_4}NIR$_2$) is attested in ritual texts, it also appears in the next cell (CAD Ḫ 227 *ḫulālu* d).

Sagittarius: If we understand the first element of the Material Row as referring to a geographical place then LI.DUR here should be read as *abunnatu*, meaning the center of the land (CAD A/I 89 *abunnatu* 2). Myrtle ($^{giš.šim}$GIR$_2$) appears under Aries-Virgo. I can find no reference to a specific plant known as "sweet plant" (*šammu ṭābu,* U$_2$ DU$_{10}$.GA) however *ṭābu* is often used to describe the quality of ingredients (CAD Ṭ 22 *ṭābu*). *ḫulālu*-stone (^{na_4}NIR$_2$) appeared in the previous cell.

Capricorn: The *kiškanû*-tree (^{giš}KIN$_2$) is used in medical texts (CAD K 453 *kiškanû* b). One would expect "scorpion plant" (*šammi zuqaqīpi*) to appear under Scorpio, its position under Capricorn is puzzling. GIR$_2$.TAB appears as a stone in other contexts, but not a plant (CAD Z 165 *zuqaqīpu*). *mušītu*-stone is presumably a dark stone, but otherwise unattested.

Aquarius: *mēsu*-tree appears under Gemini-Aquarius. ^{na_4}MUŠ.GU$_3$.TAR might be related to, or a corrupt writing for ^{na_4}MUŠ.GIR$_2$.IGI.MIN a relatively well attested stone in the medical corpus (CAD M/II 279 *muššaru*). *kurgarrānu*-stone is poorly attested, but does appear on SpTU 2, 22+ (CAD K 557 *kurgarranu*).

Pisces: The resin of the *sīḫu*-tree was used in medical recipes (CAD S 242 *sīḫu* d). ^{na_4}BAL should be read *aban tasniqti,* rather than *pilaqqu* ("spindle"), but, is unattested outside of lexical sources (CAD T 283 *tasniqti*).

Aries: Nippur is not associated with Aries in the astral-geographical texts.[279] The Ekur also appeared earlier on this side of the tablet under Virgo, as well as under Aries-Leo. ^{giš}EŠ$_{22}$ is concretely identified as the almond tree, but does not appear in medical contexts (CAD Š/III 94 *šiqdu*). *azallû*-plant (^{u_2}A.ZAL.LA$_2$) is well attested in the medical corpus (CAD A/II 524 *azallû*). It appears under the inverse sign pair, Aries-Leo, on Calender Text VAT 7816. *anzaḫḫu*-stone is a glass like stone used in medical and ritual contexts (CAD A/II 151 *anzaḫḫu*). It is also present in the inverse sign pair on VAT 7816, and also appears in Stone List 1.[280]

Taurus: Considering the ubiquity with which it occurs in other texts,the sesame[281] is not well attested in medicine (CAD Š/I 304 *šamaššammū* d 2'). ^{u_2}LI.LI appears under Cancer-Sagittarius. *ešmekku*-stone is tentatively identified with malachite, and is attested in the medical corpus (CAD E 367 *ešmekku*).

Row A see composite text and commentary.

Row B see composite text and commentary.

Row C:

Leo: The 1st of Abu in the Babylonian Almanac is "entirely favorable" in one source. The other sources and days at the beginning of Abu do not offer parallels with this cell.

Virgo: Confusion, *dilḫu*, mentioned in the second part of this cell is paralleled by the 5th day of Ābu in the Babylonian Almanac.

279 Steele 2015b, 214

280 Finkel 2000, 183

281 The identification is not sound, but used throughout these editions (CAD Š/I 306 *šamaššammū*).

Libra: The 6th and 7th of Ābu in the Babylonian Almanac record attacks of animals, a lion for the 6th and 7th, and a snake for the 7th.

Scorpio: *ṣāltu* is not often used with *nakāsu*, KU_5, however the sense is clear enough, a cessation of hostilities for one of the listed parties, god, man, goddess, or snake. It does not seem to have an obvious parallel in the hemerological traditions.

Sagittarius: Not going into the street is noticeably absent from the Babylonian Almanac, but is a common occurrence in the Offering Bread Hemerology. The dates around the 11th and 12th are not preserved however. In the Babylonian Almanac these days are unfavorable.

Capricorn: The Babylonian Almanac preserves both favorable and unfavorable days for the 13th, 14th, and 15th of Ābu. The Prostration Hemerology is not preserved for this date range. The 16th in one source of the Babylonian Almanac preserves DINGIR ŠE, a god (is) favorable.

Aquarius: Neither of these prescriptions are found in the relevant sections of the hemerology although both are attested in the hemerological tradition.

Pisces: The Babylonian Almanac on the 20th of Ābu contains the advice not to cross a river. The rest of this cell is not paralleled in the Almanac.

Aries: Neither of these prescriptions are paralleled in the Babylonian Almanac, however both the 21st and 22nd of Ābu are unfavorable.

Taurus: *sipdu*, mourning, here is paralleled by beating of the breast in the Babylonian Almanac for the 25th of Ābu. The inclusion of bull meat here must be related to the sign Taurus.

Gemini: Loss, *ṣitu*, is paralleled in the Babylonian Almanac for the 27th of Ābu.

Cancer: While it is rare for the Babylonian Almanac to include prohibitions against the consumption of meat, in this case it parallels this cell by advising the client not to eat pork, UZU ŠAḪ.

Extra:

Column I

1. TUM for IB_2?

9. The line is very fragmentary, but the last phrase could perhaps be taken as the opposite protasis to the EAE omen: DIŠ U_4 U_4.DA-*su* NU GAL_2, "If (during) the day there is no light" (ACh Adad 33:8). But an omen noting the appearance of light during the day seems rather unproductive.

12. The latter half of this line might be connected with the nonsense incantations.

13. This should be restored as the *ḫalḫallatu*-drum.

15. SAG.KI in the first part is almost certainly the forehead (*pūtu*) or brow (*nakkaptu*) often mention in the medical series SA.GIG. The form of *lapātu* in the latter half of the line suggests a form of treatment.

Column II

2. TUKU is elsewhere glossed as *rāšû* (SpTU 4, 186 rev. iv 8), suggesting the common professional title ^{lu_2}TUKU (*rāšû*) CAD R 207.

3. The gloss here is well attested. Interestingly it is also preserved on SpTU 4, 186 rev. iv 20.

7. This gloss is found on Ea 2, 199: gu-di-bir KUR.KUR(inverse) *nu-kur$_2$-tu* (MSL 14, 256).

8. The word glossed here is almost certainly *puḫpuḫḫû*, "quarrel" or "strife".

13. TCL 6 36, obv. i 24: ^{na_4}ŠAGAN ALGAMEŠ = *šik-kat$_2$-tum* MIN.

19. The catch-line on tablet I of NBGT reads: na-ab-bi-a *um-ma* (MSL 4, 147).

Column III

1. ḪUM = *ḫamāšu* is also attested on SpTU 4 186, obv. ii. 7'.

2. bu-ru here serves as a phonetic gloss for BURU$_8$ (*arû*). Ea 2, 266 preserves the line: bu-ru buru$_8$ *a-ru-u$_2$*.

4. Probably restored *ka-ka-ku,* for *kāgu* "the sign KA".

5. *tubqu* is normally written with the UB sign.

6. The repetition of KU after the glossenkeil might represent a direct quotation out of from a three columned lexical text where the sign is named in the middle column.

9. The connection between *šupû* "to make apparent" and *palāku* "to divide" is difficult to understand. However, the connection might be unique to the micro-zodiac texts. TCL 6 14, obv. 11' has "12 UZU.MEŠ ḪA.LA *ša$_2$* ^{mul_2}LU$_2$.ḪUN.GA$_2$ *ip-pal-ka*". If *palāku* was the terminology used to subdivide the Major signs of the micro-zodiac into their minor signs, the semantic meaning might similar to *šupû*, in that the process revealed the minor signs. This line should probably go with the section above, meaning that the horizontal line should come after this line.

10. From here until iv. 4 seems to concerned with astronomical terms and texts. This section seems to be set off from the rest of the contents by two blank lines, one before this line, and the other after iv. 4.

Column IV

1. I have not found a direct parallel to this line, but the concept of planets flashing is a well attested protasis in EAE.

2. EN.NUN.UŠ$_2$.SA is most likely a defective writing for EN.NUN.USAN (*barārītu*) the first watch of the evening. ILLU at the end of the line suggests an apodosis.

3. This is the well known commentary series on EAE *Sîn ina tāmartišu.* SI.MEŠ-*šu*$_2$ should refer to the moon's horns, i.e. the ends of the visible cresecent. But its role here is problematic, the horns are usually part of the protasis yet it is right justified like the ILLU from the line above, suggesting inclusion in an apadosis.

4. This line is very similar to the first line of the column. These introductory omens seem to separate out the content by bracketing a few lines in an initial protasis.

5. The first three items on this line all appear in the Row A material but the last three signs before the "break" gloss are difficult to understand.

6. The end of this line could be ^{d}AG for Nabu, written backwards, a form of retrographic writing.[282]

282 Beaulieu 2005, 7

7. Generally we would expect a planet to reach another planet or a star, not for a constellation to reach a star.

8. KI is often used in this text and other zodiacal astrological literature to signify the region of a zodiacal sign.

9. This line preserves another introductory omen. We might expect to restore ŠUB where the "break" gloss is written. Unfortunately, we do not find the thunder of Adad in the Aries section of Row A.

13. This introductory omen is very similar to the third line of this column, but focused on the 1st day of the month.

15. This line preserves another introductory omen, with a rare writing of Jupiter with SAG_3.

18. This is the common phrasing for horoscopic texts.

Column V

1. This MIN at the end of the line must signify that this line was taken from another text, one in which multiple lines began in slightly different ways but had the same result. Or it could also signify north, according to the numerical scheme: 1 = south, 2 = north, 3 = east, 4 = west.[283]

3. This line has a direct parallel on SpTU 5, 261: obv. 18' ^{mul}*dele-bat ina* KASKAL *šu-ut* ^{d}EN.LIL$_2$ KUR^{ḫa} *na-ḫaš* ^{kur}URI^{ki}.

283 Borger 2004, 389

5. The writing of *maš-ta-kal* is metathesis.

7. The only mention of Antu by herself with the verb *ṣabātu* comes from TCL 6, 40: r. 9: LUGAL ^{lu_2}MAŠ.MAŠ.MEŠ *u* ^{d}INANNA.MEŠ ŠU.MIN *an-tu*$_4$ DAB^{bat}.MEŠ-*ma*.[284] This text contains instructions for the *akītu* for the month Tašritu (VII). However, the verb disagreement suggests that these are different texts.

9. Crying out in pain is a symptom in SA.GIG. Crying out on a certain day is otherwise unknown. There is reference to calling out in prayer, particularly the *šigu*-prayer is mention in *iqqur īpuš*.[285] See Labat *iqqur īpuš* menology, Kislīmu (IX) line 45: DIŠ MIN *ši-gu-*[*u is*]-*si* ŠA$_3$.BI ⌜DU$_{10}$⌝.[GA], "If he recites the *šigû*, his heart will be co[ntent]."

12. The repetition of this line is puzzling, especially with the addition of *u*.

13. I can find no evidence of a particular *nēpešu* of Sîn or one revealed by a dream. BM 32565 contains a heading which designate a block of text as *nēpešu ša muṣlālu* "ritual for the afternoon."[286]

16. This line was commented on by Mirelman as the only known reference to the text *ṣēru šikinšu*.[287]

Column VI

6. The scribe of SpTU 3, 101 is the descendant of a *nêsakku*-priest of Enlil.

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284 Linssen 2004, 184–196

285 van der Toorn 1985, 117

286 George 2000, 274–280

287 Mirelman 2015, 171

7. The pharmacopoeial series *šammu šikinšu.*[288]

10. This line seems to be some corruption of two lines from tablet 16 of *Utukkū lemnūtu*:

200 EN_2 LU_2 ḪUL LU_2 ḪUL LU_2.BI LU_2 ḪUL

201 LU_2.BI NAM.LU_2.U_{18}.LU LU_2 ḪUL LU_2.BI LU_2 ḪUL[289]

11. RA is normally hitting or washing in medicine. End of this line might have an additional damaged sign.

12. This line is paralleled on SpTU 2, 50 a list of medical recipes for eyes: NA IGI.MIN-$šu_2$ LU_3.$LU_3^{ḫa}$, also (CAD D 43 *dalāḫu* 1 b).

15. This lines shows twice incorporated into the large text of TCL 6, 41, lines 20 and 26 of the obverse.[290] This text concerns the nocturnal rituals performed during the night at the Rēš temple. In both lines this small excerpt is an instruction for preparing the offerings for the god.

Reverse:

Initial Omen: Just as on the obverse this is paralleled by BM 36746.[291] The association with the South wind and Elam is in line with the triplicity paradigm for the zodiac.

Material Row:

288 Stadhouders 2011

289 Geller 2007, 186

290 Linssen 2004, 245–251

291 Rochberg-Halton 1984, 134

Virgo: *ašūḫu*-tree (U_3.ŠUḪ$_5$) is used in medical and ritual texts (CAD A/II 478 *ašuḫu* b). The *dulbu*-tree is not attested in medical texts (CAD D 172 *dulbu*).

Taurus: Ebony, attested on SpTU 2, 23, obv 2, as part of a phylactery associated with Virgo of Taurus (^{mul_2}ABSIN *ša*$_2$ MUL$_2$.MUL$_2$) The *nīnu*-plant (^{u_2}KUR.RA) appears under Cancer-Taurus. Jasper (*ašpû*) is well attested in medical texts (CAD I/J 328 *jašpû*). It also appears on Stone List 1 and 2.[292] *lamassu* is normally a protective divine being however here it appears as stone, perhaps it was used to protect from ailments (CAD L 65 *lamassu* 4).

Libra: Nippur is not associated with Libra in the known astral-geography texts.[293] ^{giš}ASAL$_2$ appears under Leo-Libra, it interesting that on both sides of this tablet the Libra cell contains this tree. *azupīru*-plant (^{u_2}ḪUR.SAG) is well attested in the medical corpus, and is perhaps identified with safron (CAD A/II 530 *azupīru* b). *šadânu* (^{na_4}KUR-*nu*) is not well attested in medical texts all appears frequently elsewhere (CAD Š/I 37 *šadânu* 1 b). Lapis lazuli (^{na_4}ZA.GIN$_3$) appears under Cancer-Capricorn.

Scorpio: Eridu is not associated with Scorpio in the astral-geography texts.[294] *suādu* is well attested in medical texts (CAD S 338 *suādu* b). *saḫḫû*-stone is attested as an ingredient in amulets (CAD S 57 *saḫḫû*). *turminû*-stone (^{na_4}DUR$_2$.MIN.NA) is used in amulets (CAD T 487 *turminû* c).

292 Finkel 2000, 183–184

293 Steele 2015b, 214

294 Steele 2015b, 215

Sagittarius: The *šūšu*-tree, probably licorice, is well attested in medical texts where leaves, roots, and seeds are used in treatments (CAD Š/III *šūšu* c). It appears in the inverse sign pair on the Calendar Text VAT 7815. ^{giš}EŠ$_{22}$ appears under Leo-Aries. *šubû*-stone (^{na_4}ŠUBA) is well attested in medical and ritual texts (CAD Š/III *šubû* b). It appears in the inverse sign pair on the Calendar Text VAT 7815. ^{na_4}GIŠ.NU$_{11}$.GAL appears under Aries-Libra.

Capricorn: The temple of Ištar also appears under Leo-Libra on the obverse of this tablet. *nurmû* (^{giš}NU.UR$_2$.MA), "pomegranate", is a well attested fruit, but appears rarely in medical contexts (CAD N/II 346 *nurmû* 2 b). ^{u_2}LI.LI appears under Cancer-Sagittarius. *yanibu*-stone (^{na_4}NA.BI) is attested as a component of amulets (CAD I/J 322 *janibu*). The *zibtu*-stone (^{na_4}*zi-bit* or ^{na_4}ZI.E$_2$) is attested as a bead used in medical treatments (CAD Z 104 *zibtu*). *ayartu*-stone is well attested as a decorative element and less so a charm used in medical treatments, it is probably to be identified as a white shell (CAD A/I *ajartu*).

Aquarius: The temple of Gula... The *pillû*-plant (^{giš}NAM.TAR) is well attested in the medical corpus where all parts of the plant are used in a variety of treatments (CAD P 376 *pillû*). The *baltu*-plant (^{giš}DIḪ$_3$) is well attested in the medical corpus (CAD B 66 *baltu* b). The *ṣaṣuntu*-plant, it well attested in the medical corpus (CAD Ṣ 116 *ṣaṣumtu* a 2'). $^{u_2.d}$DIM$_3$.ME is another writing of *lamaštu*, unlike earlier under Virgo-Virgo where it was written with NA$_4$ here the material is given the determinative U$_2$, which is not attested in the medical corpus (CAD L 67 *lamaštu* 2 c). *parūtu* appears under Aries-Scorpio. *zuqaqīpu*-stone (^{na_4}GIR$_2$.TAB) is attested in

abnu šikinšu and appears elsewhere as an ingredient in magical amulets. The same term is used for a plant on the obverse of this text under Leo-Capricorn.

Pisces: This cell begins the repetition of the city of Karkara (IM^{ki}) over the next three cells. *ēru*-tree appears under Aries-Cancer. *urânu*-tree appears under Cancer-Capricorn. The *rapādu*-plant was perhaps a treatment for the *rapādu* disease (CAD R 147 *rapādu* 2). ^{na_4}MUD appears under Aries-Leo as a type of plant, here it probably a dark stone. Another dark stone, *ṣurru* ($^{na_4}ZU_2.GE_6$), identified as obsidian or flint, is not well attested in the medical texts although common elsewhere (CAD Ṣ 257 *ṣurru*).

Aries: *mēsu*-tree appears under Gemini-Aquarius. The *šalluru*-tree (^{giš}ŠENNUR) is attested in ritual and divination texts but in the medical tradition (CAD Š/I 253 *šallūru*). *kamgudu* should perhaps be identified with the *kamkadu*-plant which appears under Cancer-Pisces. Copper, (*erû*, ^{na_4}URUDU) is attested in medicine as bead use in treatments (CAD E 322 *erû* f). As a powder, copper was also used in medical treatments (CAD N/II 247 *nipṣu* 2). Lead, (*abāru*, $A.BAR_2$) is attested in various types of medical texts, including the material from which instruments are made (CAD A/I 37 *abāru* c).

Taurus: *ušû*-wood appears under Leo-Virgo. Cedar, (*erēnu*, ^{giš}EREN) is ubiquitous in medicine and rituals, where both the wood and resin are used in wider variety of texts (CAD E 274 *erēnu*). *kurkānû*-plant is well attested in the medical corpus (CAD K 560 *kurkānû* b). Tin, (*annaku*, ^{na_4}AN.NA) is attested as a bead in magical texts (CAD A/II 129 *annaku* c). It is striking

that silver only appears once in the micro-zodiac texts, it is attested in medical contexts as a bead (CAD K 246 *kaspu* d).

Gemini: Damru (DU_{10}.GAR^{ki}) is not associated with Gemini in the astral-geography texts.[295] *šurmēnu*-tree appears under Cancer-Scorpio. The *burāšu*-tree (^{giš}LI) is identified with a species of juniper, related to *dupranu*. The oil from the tree is used in medical treatments (CAD B 328 *burāšu* b). *arantu*-plant appears under Aries-Cancer. The reading of ^{na_4}SA.SA is unclear. ^{na_4}GIG.MAN.NU is another writing of the *ēru*-tree which appears under Aries-Cancer.

Cancer: MU_7.MU_7 is a writing for *āšipu*, but does not translate easily into a geographical name (CAD A/II 431 *āšipu*). *ballukku* (^{giš}BAL) is an aromatic ingredient in medical texts, the writing here with the determinative GIŠ must indicate the tree (CAD B 64 *ballukku*). This is followed by the same sign with the determinative NA_4 which appears elsewhere under Leo-Pisces. The *alallu* stone appears under Gemini-Aquarius. *qutru*-plant (^{u_2}KI^{d}IŠKUR) and its seeds are are attested in the medical corpus (CAD Q 327 *qutru*). *šambaliltu*-plant (^{u_2}SILLIM.SAR) is attested in the medical corpus (CAD Š/I *šambaliltu* b).

Leo: The E_2.NAM.ḪE$_2$ is the temple of Adad in Babylon.[296] *duprānu* appears under Cancer-Aquarius. The *sābu*-stone is well attested in the medical and magical corpus (CAD S 5 *sābu* b). ^{na_4}PEŠ$_4$.ANŠE is read as *biṣṣur atāni*, and attested as a stone used in medical treatments (CAD B 269 *bīṣṣūru* 2). The writing ^{na_4}KA.A.AB is perhaps a shortened form of KA.A.AB.BA read as *imbū*

295 Steele 2015b, 214

296 George 1993 n. 839

tâmti, a mineral from the sea used in medical treatments (CAD I/J *imbû* 2). *kibrītu* (^{u_2}PIŠ$_{10}$ ^{d}ID$_2$) is well attested in medical texts used a fumigant (CAD K 333 *kibrītu* c).

Row A see composite text and commentary.

Row B see composite text and commentary.

Row C:

Virgo: The Babylonian Alamanac for the 1st and 2nd of Ulūlu only preserves favorable days. The contents of this cell go into more detail, but remain favorable.

Libra: The 5th of Ulūlu is both favorable and unfavorable in the Babylonian Almanac, which does not aid the restoration of this cell.

Scorpio: The use of *ana* IGI-*ka*, to localize the advice on the client is otherwise unattested in the hermerological tradition. The rest of this cell is similarly unattested, albeit the sense of the cell is clearly unfavorable.

Sagittarius: This cell is not paralleled in the 9th of 10th day of Ābu in the Babylonian Almanac. However, the 8th day in the Almanac recommends not provoking conflict or a lawsuit.

Capricorn: This cell is neither parelleled in the Babylonian Almanac or in the Offering Bread Hemerology, the later of which recommends placing an offering before Anu and Ištar for the 12th and 13th of Ulūlu. The Prostration Hemerology records an entry for the 10th of the month and recommends prostration before Sîn.

Aquarius: The repetition of *nigûtu* here suggests that just as Taurus is associated with conflict, *ṣāltu*, Aquarius is associated with a merriment. The 15th of Ulūlu is favorable in both the Babylonian Almanac and the Offering Bread Hemerology.

Pisces: Both the 17th and 18th contain joy, $ša_3.ḫul_2$, in the Babylonian Almanac. Interestingly, this cell mirrors the material in Cancer pisces exactly.

Aries: This cell does not seem to parallel the relevant days in the Babylonian Almanac, the Offering Bread Hemerology, or the Prostration Hemerology.

Taurus: While this cell is badly preserved the recognizable features which remain help to solidify the association between Taurus and conflict, *ṣāltu.*

Colophon: See Chapter 2 for the scribes.

3.6.8 Text 8: BM 32517 + BM 32716

Museum Number: BM 32517, BM 32716, Baked in 1962
Dimensions: 6.6 x 6.3 x 3cm, 3.1 x 3.3 x 1.2cm
3.6.8.1 Description

These two fragments do not physically join, but clearly belong to the same tablet. Their museum accession numbers indicate their proximity within the initial lot: 76-11-17, 2259 and 2486. The larger of the two fragments preserves cuneiform on both sides, while the smaller only preserves part of the reverse. The composite text contains fragmentary sections of two micro-zodiac tables belonging to Libra and Scorpio on the obverse and reverse, respectively.

On the obverse three fragmentary sections of Row A are preserved as well as the Number Row at the bottom of the tablet. The minor signs preserved are Taurus, Gemini, and Cancer. The reverse preserves the Initial Omen and the Headings for the columns, with a few traces of the Material Row directly following. Judging from the identification of the preserved content this fragment most likely represents the lower middle part of the original tablet. On the obverse two more signs would be expected to the right before the edge of the original tablet, while the Number Row at the bottom of the obverse and the Initial Omen on the reverse suggest that the fragment represents the lower part of the tablet.

The script is relatively compact, and lines within cells generally contain between three and four signs. The horizontal incised lines are clearly marked, while the vertical lines are fainter, especially on the obverse where the borders between cells in Row A are mostly non-existent. The reverse includes a double ruling with vertical lines creating boxes within the rul-

ing. While the entire width is not preserved, the boxes most likely numbered 30 similar to other "Babylonian"-style micro-zodiac tablets, (see Text 3: BM 34572). The reverse also has "firing holes", the first of which are placed between the Initial Omen and the double ruling, and they seem to occur above roughly every other box in the double ruling. The second group of "firing-holes" are placed in vertical pairs between each of the headings.

It is likely that this tablet joins Text 9 (BM 41583) on the right edge of the obverse, as that tablet preserves the two signs of Row A missing from this tablet.

3.6.8.2 Transliteration

Obverse: Libra

	(Aries)	(Taurus)	(Gemini)	(Cancer)
(Row A)		[...] ˹*ri-ba*˺ KI RA UGU GAL.ME ZI TU_{15} GAL.ME ḪU U_2 $^{im}GU_2$ *dele-bat* $GU_4.U_4$ *u dele-bat* KUR_4-*ma*	[...] *u* ḪI.GAR KI GISKIM˹ ḪI *u* ABGAL KI *ri-ba* *dan-nu* $SU.GU_7$ *dan-nu u* GURUN DU_3.A.BI	[...] ˹*pu-rat*˺ *sip-par*^{ki} LARSA˹KI˺ ^{d}˹ID_2˺ ID_2 ^{d}NIN.˹GIR_2˺.[SU *u* UR.˹SAG˺ ^{d}*nin*-[*urta*
(Calculation Row)	] ˹^{d}UTU˺ $ŠU_2$.A 40 40 *šu-ut* ^{d}50 [ ] ˹*it*˺-*ti* GISKIM KUR MAR.TU^{ki} EŠ.BAR-*šu*$_2$-*nu* ME-[*a* GAR-*an*			
	:			
(Number Row)	[1;14]	˹1˺;13	1;12	˹1˺;[11]

Reverse: Scorpio

(Initial Omen)	DINGIR].˹MEŠ GAL.MEŠ˺ [GI.MEŠ] ˹$^{mul}GIR_2$˺.TAB ^{d}30 *ina* AN.˹GE_6˺ [ ] ˹^{d}UDU.IDIM.SAG˺.UŠ *ina* MUL.MUL *lu ina* ˹^{mul}˺[AL.LUL					
			30			
(Headings)	$^{mul}LU_2$.ḪUN.˹GA˺	MUL.MUL	^{mul}MAŠ.MAŠ	[^{mul}AL.LUL]	^{mul}UR.A	˹^{mul}˺[AB.SIN_2]

		^{mul}GU$_4$.AN	^{mul}SIPA.ZI			
(Material Row)		(traces)	(traces)			

3.6.8.3 Translation

Obverse: Libra

	(Aries)	(Taurus)	(Gemini)	(Cancer)
(Row A)		... earthquake; sign of destruction concerning the great ones, onset of a great wind, ... silt Venus, Mercury and Venus are bright.	... and rebellion; sign of a sign ..., and a sage place of a strong earthquake, strong famine and all the fruit	... Euphrates, Sippar, Larsa, The divine river, the river of Ningirsu and the hero Ninurta
(Calculation Row)	... at sunset 40 40 those (stars) of Enlil [... with(sign of) the sign of Amurru their decision ... [you make] a prediction.			
	:			
(Number Row)	[1;14]	⌜1⌝;13	1;12	⌜1⌝;[11]

Reverse: Scorpio

(Initial Omen)	... The great gods will [return to their temples]. Favorable ... ... Scorpio in a lunar eclipse ... ... Saturn in the Pleiades or in Cancer ...					
			30			
(Headings)	Aries	Pleiades (or) Taurus	Gemini (or) Orion	[Cancer]	Leo	[Virgo]
(Material Row)		(traces)	(traces)			

3.6.8.4 Critical Apparatus

Obverse: Libra

Row A:

Taurus: This section of Row A preserves the later half of the composite Taurus section. There are a few minor differences. The reading of ḪU and U_2 are unclear here, neither occurs in the composite version of the Row A material. The second GAL.ME is probably a miswriting for just GAL presumably influence by the previous GAL.ME. The addition of $^{im}GU_2$ "silt", while not paralleled in other Row A Taurus material specifically, is found elsewhere in the Row A material under Scorpio. The end of this section seems somewhat confused. The repetition of *dele-bat,* for instance, is not found in the composite text. One possible reason for the confusion is suggested by the colon marker in the composite version, suggesting that both Mercury and Venus here were alternate possibilities.

Gemini: Similar to the Taurus section this cell preserves roughly the second half of the composite text. The writing of GISKIM here is problematic, with an initial KI instead of an IGI. Likewise, the reading of the ḪI at the end of this line is unclear. The inclusion of ABGAL here where we would expect EŠ.BAR is puzzling. While they are somewhat semantically related, that does not seem to be enough to justify the replacement. Otherwise, this section follows the composite version very closely.

Cancer: This section parallels the composite Row A material almost exactly. The only difference is the addition of an *u* before UR.SAG ^{d}*nin-urta* at the very end of the cell.

Calculation Row:

The Calculation Row is badly preserved with only the middle of the lines preserved. This section spans the width of the entire table on all the micro-zodiac tablets. However, its contents are very formulaic and can be restored with certainty.

The colon marker placed between the end of the Calculation Row and the Number Row is most likely used to separate sections of the text, or mark its completeness. This would have interesting implications for the position and meaning of the number row directly beneath it. The placement of the colon marker before the Number Row suggests that the numbers themselves were not thought of as part of the text, but perhaps rather as an organizing feature separate from the main table.

Number Row:

The numbers are clearly written. Their use in the identification of the tablet will be investigated in the commentary below.

Reverse: Scorpio

Initial Omen:

This section can be restored from Rochberg's edition of BM 36747+.[297] For the most part the two texts are exactly parallel. However, this tablet adds *lu ina* to the last line between the signs Taurus and Cancer.

Heading:

297 Rochberg-Halton 1984

The number 30 written above the sign headings could either represent the moon or the 30 days of the ideal month. Although the edges of the tablet are not preserved it is likely that the small cells indicated here by the incised line would have originally numbered 30 as well. The dual names for Taurus and Gemini here are in complete agreement with the rest of the micro-zodiac texts where these two zodiacal signs have both names written in the heading.

Material Row:

Unfortunately the traces here are too faint to attempt any meaningful reading of the first parts of the Material Rows for these signs.

3.6.8.5 Commentary

Obverse: Libra

Row A:

For commentary on the Row A material, see the composite edition.

Number Row:

These numbers follow the standard pattern and form one element of the identification of this tablet with the Major signs Libra and Scorpio. While the edges of the tablet are not preserved, the extent numbers can only be placed in two places within the numerical scheme for the micro-zodiac tablets: Libra or Aquarius. Then, by using the Row A material we can identify the first sign of the edge by counting back to the starting number, in this case 1,20 which would have to be Libra.

Reverse: Scorpio

Initial Omen: This omen is paralleled on BM 36746.[298]

298 Rochberg-Halton 1984, 135

3.6.9 Text 9: BM 41583

Museum Number: BM 41583 (81-6-25.198), Baked in 1980
Dimensions: 3.7 x 5.7 x 3cm

3.6.9.1 Description

Does not physically join Text 8 (BM 32517+) but is almost certainly the same tablet. The tablet was included in LBAT as number 1579.

3.6.9.2 Transliteration

Obverse: Libra

	(Cancer)	(Leo)	(Virgo)
(Row B)	[...]] ⌜x⌝ *u* ^{d}ŠUL].⌜PA⌝ E_2.A BAD] ⌜KA_2⌝	[u_4]-⌜*um*⌝ BAD KA_2 ⌜E_2⌝.KUR ^{d}50 *u ana* ^{d}*a-nun-* *na-ki* A.MEŠ BAL-qi_2	[u_4-*um* BAD KA_2] ⌜^{d}⌝30 [*u*] ^{d}15 [*ana*] ^{d}30 *u* ^{d}⌜15⌝ *na*-⌜*mir*⌝-[tu_2]
(Row A)	[...] ILLU [...] ⌜LA_2⌝-*al* [ŠE].BAR [i_2-*dig*]-⌜*lat*⌝ [*sip*]-⌜*par*⌝ [...] ⌜x⌝ [...] ⌜x⌝	KI NIG_2.E_3 IZI.ŠUB *u* ZI KUR_2 KI *um-šu*$_2$ *u* U_4.DA ^{d}*ṣal-bat-a-nu* *ana* ^{mul_2}BABBAR NIG_2.E_3 ⌜3⌝.20 ⌜^{d}⌝*ṣal-bat-a-nu* ⌜ZI KUR_2 *dan-nu*⌝ [...]	KI $SI.SA_2$ ⌜$BURU_{14}$⌝ *na-pa-aš*$_2$ ^{d}NISABA SILIM ^{munus}PEŠ$_4$.ME KI SUM!.SIKIL!(ŠE.GAR.RA) ŠE.BAR.⌜RA⌝ *u* GANBA KI EŠ.BAR KUR ELAM.MA^{ki} ⌜KI⌝ AN.TA.⌜LU_3⌝ *ana* ⌜^{d}⌝[*dele-bat*] [...]

Reverse: Scorpio

	(Virgo)	(Libra)
(Headings)	[^{mul_2}AB].⌜SIN_2⌝	[^{mul_2}GIŠ.RIN$_2$]
(Material Row)	[...] ⌜x x⌝ [...] ⌜x⌝ ḪU [...] ⌜x x⌝ KI [...] ⌜x KI⌝ si.sa$_2$ [...] ⌜x⌝ NU [...]	E_2 ^{d} ⌜x⌝ [^{giš}⌜ḫu⌝ [^{giš} [^{na_4} [^{na_4} NIN.LI.GI *ša*$_2$ KA_2 MIN-*i* ^{na_4}AŠ.ME KU_3.BABBAR

		⌜^{na_4}⌝AŠ.ME KU_3.SIG_{17}

3.6.9.3 Translation

Obverse: Libra

	(Cancer)	(Leo)	(Virgo)
(Row B)	[...] [and Šul]pa[ea, opening] of the gate.	[D]ay of opening the gate of the Ekur of Enlil, and for the Anunnaki libate water.	[Day of the opening of the gate] of Sin [and] Ištar, [for] Sin and Ištar brightne[ss.]
(Row A)	[...] flood, [...] scarcity of [gr]ain, [Tig]ris, [Sip]par ...	Place of victory, lightning and attack of an enemy, sign of summer and light, Mars, for Jupiter victory of the king, Mars, attack of a strong enemy, [...]	Place of a good harvest, abundant grain, well-being for pregnant women; sign of onion and barley and trade; sign of a decision of the land of Elam; sign of an eclipse for [Venus ...]

Reverse: Scorpio

	(Virgo)	(Libra)
(Headings)	[Virg]o	[Libra]
(Material Row)	...	Temple of [...] ...-wood, [...]-wood, [...]-stone, nin.li.gi-stone according to another (tablet) disk of silver disk of gold

3.6.9.4 Critical Apparatus

Obverse:

Row A:

Cancer: There is a gap between this cell and its left edge which is preserved on Text 8 (BM 32517+)

3.6.9.5 Commentary

Obverse:

Row B see composite text and commentary.

Row A see composite text and commentary.

Reverse:

Material Row:

Libra: The stone ^{na_4}NIN.LI.GI is unattested. This should instead perhaps be read ^{u_2}UKUŠ$_2$.LI.GI a corrupt writing of the *liligû*-plant normally written UKUŠ$_2$.LI.LI.GI (CAD L 186 *liligû*). The use of *"ša pî šanî"* is most likely a scribal reference to an alternate tradition (see CAD P *pû* A, 7c),[299] although here the stock phrase omits *ṭuppi*. This phrase can also be found in slightly different, albeit heavily restored, phrasing in the Neo-Assyrian epistolary corpus. K. 1007 (SAA VII 107) has "[*ša*$_2$ KA *ṭup*]-⌜*pi*!⌝ *ša-ni-e*" translated by Hunger as "according to another tablet". AŠ.ME here is read *šamšatu*, commonly used to refer to disk shaped jewelry or decorative elements. Here it must be referring to the shape of an amulet or stone.

299 Worthington 2012, 11

3.6.10 Text 10: BM 36292 + BM 37355

Museum Number: BM 36292 (80-6-17, 18) (Baked in 1978) and BM 37355 (80-6-17, 1112) (Baked in 1979)
Dimensions: 11.5 x 8.6 x 3.2cm
3.6.10.1 Description

This text was previously unpublished. It is a large fragment containing part of the tables for Aquarius and Pisces on the obverse and reverse respectively. The layout and hand of the scribe are very similar of Text 3 (BM 34572), Text 8 (BM 32517+), and Text 9 (BM 41583) suggesting that these were all written by the same scribe. The reverse of the tablet has suffered some surface damage making the signs harder to read.

The mark on the reverse is enigmatic, Christopher Walker suggested a Bowler's mark, made by a lithographer preparing Rawlinson volumes, but that is apparently a distinct different mark. Regardless, this mark is probably not ancient and must be some form of modern or recent way of marking tablets.

3.6.10.2 Transliteration

Obverse: (Aquarius)

	(Aquarius)	(Pisces)	(Aries)	(Taurus)	(Gemini)	(Cancer)
(Row A)	[...] [...] [...] [...] [...] [...] [...] [...] ⌜*ana* ^{d}*dele-bat*⌝ ^{d}GU$_4$.U$_4$ *u* ^{mul_2}BABBAR SI.SA2.ME	[...]] ⌜PIŠ$_{10}$⌝ ⌜SI⌝.[SA$_2$ ⌜ŠE⌝.GIŠ.⌜I$_3$⌝ ZU$_2$.LUM ⌜*ka*⌝-*si-ia*$_2$ ⌜*ana*⌝ ^{d}*dele-bat* ⌜*u*⌝ GU$_4$.U$_4$ *ana* ^{d}*ṣal-bat-a-nu* *u* ^{d}SAG.UŠ NU SI.SA$_2$.ME ^{mul_2}BABBAR SIG.SIG-*ma*	[...] [...] ⌜ŠE⌝.[BAR.RA *ana* ^{d}SAG.⌜UŠ⌝ ^{mul_2}BABBAR SIG!(ME).SIG-*ma* *ana* ^{d}*ṣal-bat-a-nu* ZI KUR$_2$ KUR$_4$-*ma* *ana* ^{d}GU$_4$.U$_4$ ŠEG$_3$ SIG.SIG-*ma*	[...] [...] [...] [...] [...] ⌜x x⌝ [GAL.ME ZI TU$_{15}$ GAL.ME *ana* ^{d}x : *ana* ^{d}GU$_4$.U$_4$ *u* ^{d}*dele-bat* KUR$_4$-*ma*	[...] [...] [...] [...] [...] [...] [...] ⌜*ri-ba*⌝ [šu.gu$_7$ *u* GURUN DU$_3$.A.BI	[...] [...] [...] [...] [...] [...] [...] [...] [...] ⌜^{d}⌝[NIN.GIR.SU *u* ⌜UR⌝.[SAG ^{d}⌜*nin*⌝-[*urta*
(Calculation Row)	2;40 ^{mul}GU.LA <*šu-ut*> ^{d}*e*$_2$-*a* ḪA.LA AN.TA *ša*$_2$ ^{d}SAG.ME.<GAR> *ina* ^{d}UTU ŠU$_2$.A 1;20 1;20 [^{d}UTU E$_3$.A 40 *ina* ^{d}UTU ŠU$_2$.A 1;20 KI URU.MEŠ *an-nu-tu*$_2$ *ina* KI ^{mul}GU.LA ⌜KI⌝ [					
(Number Row)	1;20	1;19	1;18	1;17	1;16	1;⌜15⌝

Reverse: (Pisces)

(Initial Omen)	] ⌜x x *ina* ^{mul}⌝ [							
(Labels)	^{mul}AŠ.GANA$_2$ ⌜^{mul}*dele-bat*⌝							
(Heading)	^{mul}AŠ.GANA$_2$	^{mul}LU$_2$.ḪUN.GA	MUL.MUL ^{mul}GU$_4$.AN.NA	^{mul}MAŠ.MAŠ ^{mul}SIPA.ZI	^{mul}AL.LUL	⌜^{mul}⌝UR.GU	[^{mul}AB.SIN$_2$]	[^{mul}GIŠ.RIN$_2$]

(Material Row)	[...]	KIŠI$_2$^{ki} ^{giš}NU.UR$_2$.MA] ⌜x⌝ ša$_2$ 20] ⌜DU⌝] ⌜x⌝] ⌜x⌝] ⌜x⌝	E$_2$ ^{d}ID$_2$ ^{giš}BU ⌜x⌝ ŠU$_2$ ^{u_2}SIKIL IGI TUM ^{u_2}⌜x x⌝ BU ^{na_4}DIB.DIB I UŠ	e$_2$ ^{d}x ^{giš}GI SI $^{giš.šim}$GIR$_2$! ^{u_2}x ^{u_2}ḪA ^{na_4}SAG x ^{na_4}*saḫ-ḫu-u*	E$_2$ ^{d}IŠKUR ^{giš}*ur$_2$-an* ^{giš}UR.UR$_4$-*u* ^{u_2}*a-la-mu* ^{u_2}ŠU.GI IS ^{na_4}MUŠ.GIR$_2$ ^{na_4}x x x	*eri-du$_{10}$* $^{giš.dl}$LAMMA x ^{giš}x ŠU x x ZA BU ⌜^{u_2} x x x⌝ ⌜x⌝	*ina* ⌜x⌝ [^{u_2}⌜x⌝ [⌜x⌝ [⌜^{u_2}⌝ [⌜^{u_2}⌝ [⌜x⌝ GI ^{na_4}SAG.KI : AB	⌜^{na_4}x⌝ [
(Row C)			⌜*ṣal*⌝-*tu$_4$* ⌜NU ŠE.GA⌝ ⌜x⌝	*di-nu$_3$* ⌜x x⌝ NU	ŠE.[GA]	⌜*di*⌝-*nu$_3$* [ŠE].GA *ana* ^{d}AMAR.UTU ⌜*liš*⌝-*ken* ⌜x x⌝	⌜ x x x x⌝ DIŠ x *la* ⌜x x⌝ UD ⌜x x x⌝	*ina di-*⌜*nim*⌝ ⌜ŠE⌝.[GA] *ana* [

3.6.10.3 Translation

Obverse: (Aquarius)

	(Aquarius)	(Pisces)	(Aries)	(Taurus)	(Gemini)	(Cancer)
(Row A)	[...] for Venus, Mercury and Jupiter will go well.2;40 Aquarius Ea upper portion of Jupiter at sunset 1;20 1;20 [... (at) sunrise 40 at sunset 1;20 Sign of these cities in the region of Aquarius ... [...	[...] [river] bank, pro[per (harvest for) sesame, dates, (and) mustard; for Venus and Mercury, for Mars and Saturn (it) will not go well, Jupiter will be faint.	[...] barley; for Saturn, Jupiter will be faint; for Mars attack of enemy and brightness; for Mercury rain and faintness.	... the great ones, great gusts of wind; for ... : for Mercury and Venus brightness.	[...] earthquake, famine and fruit, all of it.	[... Ningirsu] and the he[ro] Nin[urta.]
(Calculation Row)	2;40 Aquarius Ea upper portion of Jupiter at sunset 1;20 1;20 [... (at) sunrise 40 at sunset 1;20 Sign of these cities in the region of Aquarius ... [...					
(Number Row)	1;20	1;19	1;18	1;17	1;16	1;15

Reverse: (Pisces)

(Initial Omen)	...] ... in [...							
(Labels)	Pisces, Venus							
(Headings)	Pisces	Aries	Pleiades, Taurus	Gemini, Orion	Cancer	Leo	[Virgo]	[Libra]
(Material Row)	[...]	Kiš, pomegranate-tree, ...	Temple of the divine rivber, ...-tree pure-plant ..., ...-plant, ...-stone ...	Temple of ... ...-tree, myrtle, ...-plant, ...-plant, ...-stone, *saḫḫû*-stone.	Temple of Adad, fennel, $UR_4.UR_4$-tree, *alamû*-plant ...-plant, serpentine, ...-stone.	Eridu, *lamassu*-tree, ...-tree, ...-plant, ...	in ..., ...-plant, ...-plant, ...-plant, SAG.KI-stone : ...	[...] ...-stone.
(Row C)	[...]	[...]	Quarrel not favorable, ...	Judgement ... not ...	Favo[rable]	Judgement [favo]rable, he should prostrate to Marduk ...	...	Favorable in judgement, for ...

3.6.10.4 Critical Apparatus

Obverse: Aquarius

Row A:

Pisces: This cell is missing "BURU$_{14}$ *na-pa-aš*$_2$ ^{d}NISABA" which is found in the composite edition. Interestingly, this phrase is also absent in the Row A Pisces cells on Text 3 (BM 34572) on both sides of the tablet. This suggests that the source for these two tablets omitted the phrase from this section of the text. Furthermore, it is possible that the same scribe worked on both of these tablets, and probably TExt 8 (BM 32517+) as well.

Taurus: At the end of this cell there is a planet name thatDon't w is damaged and difficult to read. It is followed by a colon marker and then the name of the planet Mercury. In other texts this might imply that this name is a gloss for Mercury, but in the Row A sections colon markers often just signify the division between explicit clauses.

Gemini: The end of this cell is missing the two words *dan-nu* found in the composite text that modify the earthquake, *ri-ba*, and the famine, SU.GU$_7$.

Calculation Row:

This section matches the other calculation rows from the rest of the micro-zodiac texts very closely.

Reverse: Pisces

Labels: Beneath the label section there is a mostly empty row bounded by incised lines. The only contents of the row are repeated vertical wedges. The first pair are placed above the heading for Aries, two more appear above Taurus and more follow from there. There are hints

of the top parts of wedges at the beginning of the row above the heading for Pisces but they have clearly been erased as visible smudge marks remain on the surface of the tablet.

Material Row:

Aries: This cell is badly damaged but the first two lines can be restored with certainty. The third item in the cell seems to end with $\check{s}a_2$ 20, however $\check{s}a_2$ appears nowhere else in the Material Row contents of the micro-zodiac.

Taurus: The readings of a few of the items in the cell are unclear.

Gemini: The readings of a few of the items in the cell are unclear.

Cancer: The readings of a few of the items in the cell are unclear.

Leo: The tablet surface at this point becomes abraided making interpretation of the signs more difficult.

Virgo: Very little is preserved on this cell.

Row C:

Taurus: Despite the fragmentary nature of this cell the few signs preserved allow for a confident reconstruction of most of the contents.

Virgo: The reading of this cell is very difficult, many of the signs are damaged.

3.6.10.5 Commentary

Obverse:

Row A see composite text and commentary.

Reverse:

Label: Venus is confidently restored here because its *hypsoma* is located in Pisces.

Material Row:

Aries: Kiš is not associated with Aries in the astral-geography texts.[300] *nurmû* appears in Virgo-Capricorn.

Taurus: Perhaps the full name of this temple is E_2.ID$_2$.LU$_2$.RU.GU$_2$ "House of the River Ordeal".[301] The only wood written syllabically beginning with BU that I could find was *buṭnu* (CAD B 358 *buṭnu*), the second sign could be an UD read as *uṭ* but the last sign is clearly ŠU$_2$. Another option is to read ^{giš}KIM$_2$ for *ḫilēpu* (CAD Ḫ 185 *ḫilēpu*), which is not attested in the medical corpus and leaves the later two signs without an interpretation. The *sikillu*-plant, (^{u_2}SIKIL) is attested in the medical corpus (CAD S 243 *sikillu*).

Gemini: Myrtle, *asu* ($^{giš.šim}$GIR$_2$) appears under Aries-Virgo. ^{u_2}ḪA, read *šimru* is closely related to *urânu*, which appears under Cancer-Capricorn (CAD Š/III 8 *šimru*). *saḫḫû*-stone appears under Virgo-Scorpio.

Cancer: *urânu* appears again under Cancer-Capricorn. ^{u_2}UR$_4$.UR$_4$ should instead perhaps be read as GAZI for *kasû* which is well attested in the medicinal corpus (CAD K 248 *kasû* b). ^{u_2}ŠU.GI is difficult to understand, the logogram is a common writing for *šību*, "an old man" (CAD Š/II 390 *šību*). *mušširu*-stone (^{na_4}MUŠ.GIR$_2$) might also appear under Leo-Aquarius, but that rests on correcting the text. The stone itself is well attested in the decorative arts as well as in the medical corpus (CAD M/II 280 *mušširu*).

300 Steele 2015b, 214

301 George 1993, n. 507

Leo: Eridu is not associated with Leo in the astral-geography texts.[302] *lamassu* appears under Virgo-virgo as a type of stone.

Virgo: ^{na_4}SAG.KI is attested on a stone list (CAD P 553 *pūtu* 9).

Row C:

Taurus: The 7th of Addaru in the Babylonian Almanac is unfavorable.

Gemini: This cell is fragmentary but the theme of a judgement is not taken up for this day in the hemerological tradition.

Cancer: The 12th and 13th of Addaru are both favorable in the Babylonian Almanac. While the Offering Bread Hemerology is unfavorable for the 13th, the Prostration Hemerology contains a positive omen, "his good fame will be in the mouth of the people".

Leo: The 15th of Addaru is favorable in the Babylonian Almanac, although there is no menton of a judgment. Neither the Offering Bread Hemerology or the Prostration Hemerology makes any mention of Marduk during this part of the Month.

Virgo: While this cell preserves very little content the one negative *la*, suggests a parallel with the Babylonian Almanac which is unfavorable for the 17th of Addaru.

Libra: The 20th of Addaru is favorable in the Babylonian Almanac. Neither the Offering Bread Hemerology of the Prostration Hemerology seem to match this cells contents.

302 Steele 2015b, 214

3.6.11 Text 11: K 11151 + Bm 68063 + BM 76348 + BM 82976 + BM 83006

Museum Number: K 11151, BM 68063 (82-9-18, 8061), BM 76348 (AH 83-1-18, 1716), BM 76374 (AH 83-1-18, 1742), BM 82976 (83-1-21, 139), and BM 83006 (83-1-21, 169).
Dimensions:
3.6.11.1 Description

This tablet was first published by Weidner in GDBT as a much smaller fragment. Since then more pieces of text have been joined to it. This text is unique in the larger corpus as it includes multiple tables on one side of the tablet. It preserves a large section of the micro-zodiac series but is lacking a few crucial sections of the text. A total of five of the micro-zodiac tables are attested on the obverse, and the reverse is unfortunately completely missing. This suggests that the tablet would have originally preserved all twelve tables, six on each side, very similar to BM 36746 which would have preserved six of the initial omen sections on the obverse of the tablet and six on the reverse.

The tablet has grown considerably since Weidner edited it in his edition of the micro-zodiac material. Lambert summarized the additions in his review of Reiner's *Astral Magic*:

> P. 115, note 523. The tablet referred to as probably from Uruk, K 11151, is now joined to BM 68063 (82-9-18, 8061) + 76348 (AH 83-1-18, 1716) + 76374 (AH 83-1-18, 1742) + 82976 (83-1-21, 139) + 83006 (83-1-21, 169) - of which joins, the first, BM 68063, was already given in R. Borger, Handbuch der Keilschriftliteratur, vol. 2 (Berlin: De Gruyter, 1975), 364. The rest is given in E. Leichty, Catalogue of the Babylonian Tablıets in the British Museum, vols. 7-8 (London: British Museum Publications, 1987-1988). J. E. Reade in the introduction to volume 6 of this work (1986) comments on the sources of the 82-9-18 collection on p. xxxiii. C. B. F. Walker comments on the sources of the AH 83-1-18 and 83-1-21 collections in the introduction to volume 8, pp. xii-xiii. From these comments it appears very doubtful whether K 11151 + can have come from Uruk.[303]

303 Lambert 1999

The joins show clearly that the initial attribution to the K. collection is misleading and that in all probability the tablets come from Rassam's excavations in the vicinity of Babylon.

The current tablet contains three rows of the micro-zodiac table. The omission of Row A is a mystery. One potential explanation, that Row A was omitted because of its non-unique nature, cannot be the reason, as Row B, also not unique, is included on this tablet. Row A is the largest of the rows and perhaps its inclusion would not have allowed the twelve tables to fit reliable on one tablet.

3.6.11.2 Transliteration

Obverse:

	(Gemini)	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)
(Row B) (Aries)	[...]	[...]	[UD BAD KA$_2$ E$_2$] [^{d}50 *u ana*] ^{d}*a-nun-na-ki* ⌜A⌝.ME BAL	[UD DINGIR IRI ^{d}30 *u* ^{d}15] ⌜*ana* ^{d}⌝[30 *u* ^{d}15] *na-mir-tu*$_2$	[UD DINGIR IRI ^{d}30 20 ^{d} 1 ^{d} 2 ^{d} 3] *u* ⌜UR⌝.[SAG] ^{d}NIN.⌜GIR$_2$⌝.[SU	[UD DINGIR IRI ^{d}*al-lat* UR.SAG GAL-*u* ^{d}U.GUR *u*] ⌜^{d}*iš-ḫa-ra*⌝	[UD UR.SAG GAL-*u* ^{d}PA.BIL.SAG] ⌜EN GAL-*u*⌝ ^{d}MAŠ	[UD AŠ.GANA$_2$ *eri-du*$_{10}$ ^{d}*a-nu*] ⌜*u*⌝ ^{d}[15
(Row C)	[...]	[...]	] ⌜*ana* ^{d}⌝*a-nun-na-ki* ⌜*ana* UTU⌝ ^{d}50] ⌜x x⌝	*be-ra-tu*$_2$ ZUKUM *ana* GU.LA	SAG.⌜DU⌝ [	^{giš}TUKUL *ṣal-tu*$_2$	NU ŠE.GA	KU$_6$ NU ⌜GU$_7$⌝ NU ŠE.⌜GA⌝

	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)
(Material Row) (Taurus)	[...]	[...]	[...]	⌜x x ^{ki}⌝] ⌜x⌝ TA UD] ⌜x⌝ KI] x UM x	NIBRU^{ki} ^{giš}ŠE.GIŠ.I$_3$ ^{u_2}KUR.RA ^{na_4}KUR.RA	ŠEŠ.UNUG^{ki} ^{giš}MA.NU ^{giš}PA ^{u_2}GU.LA x ^{na_4}x x E$_2$	e$_2$ ^{d}x ^{giš}x ^{u_2}IGI.LIM ^{na_4}x	UNUG⌜^{ki}⌝ ^{giš}PA ^{u_2}ŠIM ⌜x⌝ ^{na_4}ḪA MI ⌜x⌝
(Row B)	UD DINGIR] ⌜IRI⌝ ^{d} UTU DI.KU$_5$] ⌜KUR⌝ *u* ^{d}ŠUL.PA.E$_3$.A BAD] ⌜KA$_2$⌝	[UD BAD KA$_2$ E$_2$] ⌜^{d}⌝[50 *u* *ana* ^{d}⌜*a*⌝-[*nun-na-ki* A.ME BAL]	[UD DINGIR IRI ^{d}30 *u* ^{d}]15 *ana* ^{d}30 *u* ^{d}15] ⌜*na-mir-tu*$_2$⌝	UD BAD KA$_2$] ⌜^{d}⌝30 20 [^{d}1 ^{d}2] ⌜^{d}⌝3 [*u*] ⌜UR⌝.[SAG] ^{d}NIN.]⌜GIR$_2$⌝.⌜SU⌝	UD BAD KA$_2$ ^{d}*al-lat* UR.SAG GAL ^{d}U.GUR *u* ^{d}*iš-ḫa-ra*	UD UR.SAG GAL-*u* ^{d}PA.BIL.SAG EN GAL-*u* ^{d}MAŠ	UD AŠ.GANA$_2$ *eri-du*$_{10}$ ^{d}*a-nu u* ^{d}15 ⌜^{d}⌝NIN.SIR$_2$.SIR$_4$	UD DINGIR IRI UR.SAG GAL-*u* ⌜^{d}⌝ [AMAR.UTU] *u* ^{d}⌜MAŠ⌝
(Row C)	] ⌜DU⌝ ⌜30⌝ 20 *liš-ken*	UZU [MA [	*di-nu* ŠE.GA *ana* ^{giš}LI NU x DU	KI/DI? [*ana* 20 ⌜*liš-ken* x x⌝	⌜x x⌝ *ṣal-tu*$_2$] ⌜x x⌝	⌜x x x x x x⌝	⌜KU$_6$⌝ NU GU$_7$] ⌜x x x⌝	⌜x⌝ [⌜x⌝ [

	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)
(Material Row)	E$_2$ ŠU NUMUN	⌜E$_2$⌝ ^{d}MAŠ	E$_2$ ^{d}U.GUR	E$_2$ ^{d}IŠKUR	⌜AKŠAK⌝[^{ki}	E$_2$ ŠE.RI].⌜GA⌝	E$_2$ ^{d}⌜ŠAKAN$_2$⌝	

(Gemini)	$^{giš.u_2}$GIR$_2$ ^{giš}UR.UR$_4$-*u* $^{\ulcorner na_4 \urcorner}$x GI ZI	^{giš}ŠE KI GU$_4$ ^{giš}*ur$_2$-an* ^{na_4}AN.BAR	^{giš}LAM! ^{u_2}PA ^{na_4}A.BAR$_2$	^{giš}KUR.RA ^{u_2}SIKIL ^{na_4}URUDU	^{giš}*ur-*$^{\ulcorner}$*ṭu*$^{\urcorner}$-[*u*$_2$ ^{u_2}[AŠ] ^{na_4}AŠ.[GI$_3$.GI$_3$	^{giš}U$_2$.GIR$_2$]. $^{\ulcorner}$A.AB.BA$^{\urcorner}$ ^{u_2}LU$_2$]-*an* ^{na_4}] $^{\ulcorner}$UGU.AŠ.GI$_3^{\urcorner}$. [GI$_3$]	^{giš}MES ^{u_2}LAL ^{na_4}*a-*$^{\ulcorner}$*lal-lu*$_4^{\urcorner}$	$^{\ulcorner giš \urcorner}$[$^{\ulcorner u_2 \urcorner}$[
(Row B)	[UD BAD] KA$_2$] $^{\ulcorner}$x$^{\urcorner}$ E$_2$ ^{d}5O *u ana* ^{d}*a-nun-na-ki*] $^{\ulcorner}$A$^{\urcorner}$ BAL	UD DINGIR IRI ^{d}3O *u* ^{d}15 *ana* ^{d}3O *u* ^{d}15 *na-mir-tu*$_2$	UD DINGIR IRI ^{d}3O 2O ^{d}1 ^{d}2 ^{d}3 *u* UR.SAG ^{d}NIN.GIR$_2$.SU	UD DINGIR IRI ^{d}*al-lat* UR.SAG GAL-*u* ^{d}U.GUR *u* ^{d}*iš-ḫa-ra*	UD UR.SAG [GAL-*u*] $^{d\ulcorner}$PA.BIL.SAG$^{\urcorner}$ EN GAL-*u* $^{d\ulcorner}$MAŠ$^{\urcorner}$	UD AŠ.GANA$_2$ *eri-du*$_{10}$ ^{d}*a-nu u* ^{d}15	UD $^{\ulcorner}$UR.SAG GAL- *u*$^{\urcorner}$ $^{d\ulcorner}$AMAR.UTU$^{\urcorner}$ *u* $^{d\ulcorner}$MAŠ$^{\urcorner}$	[...]
(Row C)	] $^{\ulcorner}$x$^{\urcorner}$	GURUN NU GU$_7$ *ana di-nu* E$_3$	*di-nu* ŠE.GA *ana* 2O NU *uš-ken*	*ṣal-tu*$_2$ *la i-ṣa-lu* AN E TUK	NU ŠE.GA x x ḪA.LA NU ḪA.LA	KU$_6$ NU GU$_7$ AN.GE$_6$ 2O *di-nu* ŠE.GA	^{giš}MA$_2$ NA $^{\ulcorner}$U$_5^{\urcorner}$ *ana* ^{d}IDIM $^{\ulcorner}$*liš*$^{\urcorner}$- [*ken*]	[...]
	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)	(Aries)
(Material Row) (Cancer)	[...]	[E$_2$] $^{\ulcorner d \urcorner}$*a-nu* [^{giš}] $^{\ulcorner}$x$^{\urcorner}$	E$_2$ ^{d}5O ^{giš}ŠUR.MIN$_3$ ^{u_2}SIKIL.LA $^{\ulcorner}$X$^{\urcorner}$	E$_2$ $^{\ulcorner d \urcorner}$IDIM $^{\ulcorner giš.šim \urcorner}GIR_2$ [^{u_2}LI].$^{\ulcorner}$LI$^{\urcorner}$ $^{\ulcorner na_4}$BABBAR x$^{\urcorner}$	E$_2$ ^{d}ŠUL.PA.E$_3$.<A> ^{giš}SAG AN.BAR ^{u_2}TAL$_2$.TAL$_2$ ^{na_4}*a-lal-lu*$_4$ ^{na_4}ZA.GIN$_3$	E$_2$ ^{d}NIN.GIR$_2$.SU ^{giš}*dup-ra-an* ^{u_2}*ak-tam* ^{na_4}*mar-ḫal-lu*$_4$	e$_2$ $^{\ulcorner}$x x$^{\urcorner}$[$^{\ulcorner giš \urcorner}$[$^{\ulcorner u_2 \urcorner}$[	[...]
Row C	[...]	[...]	] $^{\ulcorner}$x$^{\urcorner}$] $^{\ulcorner}$x$^{\urcorner}$	*ṣal-tu*$_2$ AN.GE$_6$ 3O	KU$_6$ NU GU$_7$ *ana* ^{d}IDIM *liš-ken*	*ana* DI NU $^{\ulcorner}$E$_3^{\urcorner}$ *ana* MUNUS [	[...]	[...]
	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)	(Aries)	(Taurus)
SPW (Leo)	[...]	[...]	] $^{\ulcorner}$x$^{\urcorner}$] $^{\ulcorner}$x$^{\urcorner}$	E$_2$ ^{d}*a-nun-na-ki* ^{giš}KIN$_2$ $^{\ulcorner u_2 \urcorner}GIR_2$.$^{\ulcorner}TAB^{\urcorner}$	E$_2$ $^{d\ulcorner}$NIN.GIŠ.ZI.DA$^{\urcorner}$ $^{giš\ulcorner}$MES$^{\urcorner}$ [	[...]	[...]	[...]

3.6.11.3 Translation

Obverse:

	(Gemini)	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)
(Row B) (Aries)	[...]	[...]	[Day of the opening of the gate of the Ekur of Enlil and for] the Anunnaki libate water	[Day of the opening of the gate of Sin and Ištar], for [Sin and Ištar] brightness.	[Day of opening of the gate of Sin, Šamaš, Anu, Enlil, Ea], and the he[ro] Ningir[su].	[Day of opening of the gate of Allatu, the great hero Nergal and] Išhara.	[Day of the great hero Pabilsag] and the great lord Ninurta.	Day of the field of Eridu, Anu] and [Ištar.]
(Row C)	[...]	[...]	For the Anunnaki, for Šamaš, Enlil ...	Step between, for Gula.	Head ...	Weapon, quarrel.	Not favorable.	He should not eat fish, not favorable.

	(Cancer)	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)
(Material Row) (Taurus)	[...]	[...]	[...]	...	Nippur, sesame, mountain-plant, hematite.	Ur, *ēru*-tree, white corral?, ...	... *imḫur-lim*-plant, ...	Uruk, white-corral, ...
(Row B)	[Day of the city god, Šamaš the judge of the] land [and Šulpaea, opening of] the gate.	[Day of the opening of the gate of the Ekur of Enlil and] for the Anun[naki libate water]	[Day of the opening of the gate of Sin and Ištar, for Sin and Ištar] brightness.	[Day of opening of the gate of] Sin, Šamaš, [Anu, Enlil,] Ea, [and] the he[ro] [Nin]girsu.	Day of opening of the gate of Allatu, the great hero Nergal and Išhara.	Day of the great hero Pabilsag and the great lord Ninurta.	Day of the field of Eridu, Anu and Ištar, Ninsirsir.	Day of the city god, the great hero [Marduk] and Ninurta.
(Row C)	... he should prostrate (to) Sin (and) Šamaš.	...	favorable judgement, he should not go out for ...	... he should prostrate (to) Šamaš ...	... quarrel ...	...	He should not eat fish ...	...

	(Leo)	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)
(Material Row) (Gemini)	... myrtle, UR.UR$_4$-tree, ...-stone.	Temple of Ninurta, ...-tree, fennel, iron.	Temple of Nergal, *lammu*-tree white coral-plant, lead.	Temple of Adad, mountain-tree, pure plant, copper.	Akšak, *urṭû*-tree, [*maštakal*]-plant?, ar[senic?]	Šeriga-temple, sea [myrtle], [*amīl*]*ānu*[-plant] turquoi[se.]	Temple of Sumuqan, *mēsu*-tree, *ašqulālu*-plant, *alallu*-stone.	... ...-tree, ...-plant, ...
(Row B)	[Day of the opening] of the gate of the temple of Enlil, [and for the Anunnaki] libate water.	Day of the city god, Sin, Šamaš and Ištar, for Sin and Ištar brightness.	Day of the city god, Sin, Šamaš, Anu, Enlil, Ea and the hero Ningirsu.	Day of opening of the gate of Allatu, the great hero Nergal and Išhara.	Day of the [great] hero Pabilsag and the great lord Ninurta.	Day of the field of Eridu, Anu and Ištar.	[...]	[...]
(Row C)	...	He should not eat fruit, go out for a judgement.	Favorable judgement he should not prostrate to Šamaš.	He will not engage in a quarrel, ...	Not favorable ... A piece is not a piece?	He should not eat fish, eclipse of the sun, favorable judgement.	A man should ride a boat, he should [prostrate] to Ea.	[...]

	(Virgo)	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)	(Aries)
(Material Row) (Cancer)	[...]	[Temple] of Anu, ...	Temple of Enlil, cypress, pure-plant, ...	Temple of Ea, myrtle, LI.LI-plant, white-stone.	Temple of Šulpaea, iron-tree?, *uriyānu*-plant, *alallu*-stone, lapis-lazuli.	Temple of Ningirsu, juniper, *aktam*-plant, *marḫalu*-stone.	Temple ... ...-wood ...-plant, ...	[...]
(Row C)	[...]	[...]	...	quarrel, eclipse of the moon.	He should not eat fish, he should prostrate	He should not go [out] for judgement,	[...]	[...]

					to Ea, ...	for a woman ...		
	(Libra)	(Scorpio)	(Sagittarius)	(Capricorn)	(Aquarius)	(Pisces)	(Aries)	(Taurus)
(Material Row) (Leo)	[...]	[...]	...	Temple of the Anunnaki, kin_2-tree, Scorpion-plant, [...]	Temple of Ningišzida, *mēsu*-tree, [...]	[...]	[...]	[...]

3.6.11.4 Critical Apparatus

Obverse:

Major Sign Aries:

Row B:

These sections were restored from the composite Row B material found on other texts. There are a few minor differences noted below.

Libra:

The restoration of $^{d}1$ $^{d}2$ $^{d}3$ will be explained in the Taurus-Libra Row B section below.

Scorpio:

The addition of the goddess *Išḫara* is interesting here. The restoration in this cell is certain because the same exact content is found on the following row one column to the left in a cell with the same sign combination (Aries-Scorpio).

Sagittarius:

This cell contains a minor variant from the composite edition: Ninurta's name is written ^{d}MAŠ instead of spelled out phonetically ^{d}*nin-urta*.

Row C:

Leo:

The last two signs in this cell are difficult to make out due to the fragmentary nature of the tablet. Unfortunately, no parallel section exists in the corpus to aid in restoration. One would expect *liš-ken* or NU *uš-ken*, judging from the previous context.

Virgo:

The first clause in this cell is paralleled in VAT 7847+, Virgo-Pisces, and BM 34572, Cancer-Pisces. The second seems to be missing a verbal element, presumably *liškēn*.

Libra:

The first sign is clear enough, but a large crack in the tablet precludes reading any more of this cell, and without a parallel section restoration is impossible.

Capricorn:

This section is directly paralleled by the equivalent section on the Calender Text VAT 7816 in the second Capricorn section on the reverse.

Major sign Taurus:

Material Row:

Libra:

Unfortunately the fragmentary nature of this section and the lack of a parallel section make restoration difficult.

Sagittarius:

The surface of the tablet is abraded here, and the lack of a parallel section makes restoration difficult.

Capricorn:

The surface of the tablet is very abraded here, and the lack of the a parallel section makes restoration difficult.

Aquarius:

The bottom right of this cell is difficult to read.

Row B:

Cancer:

This cell is only preserved in the bottom right corner, however the composite text provides a full restoration.

Leo:

Similar to the previous cell only the bottom corner is preserved of this cell, however the composite text allows for restoration. However, I am not sure if the full restoration of the contents form the composite text would fit in the space provided. The small differences between these sections throughout the micro-zodiac series would allow for the omission of certain sections.

Virgo:

Only the bottom half of each of the signs in the last line of this cell are preserved but they match with the composite text, allowing for restoration.

Libra:

The lack of a DINGIR sign for Šamaš perhaps presents a solution to restoring the full amount of text from the composite text in the breakage. This tablet seems to shorten this section by omitting non-necessary determinatives and words. The restoration of $^{d}1\ ^{d}2\ ^{d}3$ is provided by the same cell in the following Major sign. It is clear that they represent Anu, Enlil, and Ea, from comparison with the composite text. $^{d}1$ or 60 as Anu is well attested but 2 and 3

for Enlil and Ea, respectively are more difficult to place. Also puzzling is the omission of Ištar in this section.

Scorpio:

Just like the same cell in the previous Major sign here the addition of *Išhara* is a marked difference from the composite text. Also, noticable is the variant writing of *Allatu* as *al-lat*. Most likely this would be the case with the same cell in the previous section, Aries-Scorpio. One sign of the abbreviated writings, so common on this tablet, is first evinced by this cell. All the previous sections for Row B were missing the initial sign marking the "day". However, in this cell the scribe wrote just the UD sign, rather than u_4-*um* found in the composite text. Row B.

Sagittarius:

This section parallels the composite text almost exactly, the name of Ninurta is written with MAŠ instead of syllabically.

Capricorn:

This cell presents an orthographic variant from the composite text and one substantial addition. The goddess Ištar here is written with the number 15, which is common usage both on this tablet specifically, and a frequent substitution elsewhere in the composite text of Row B. The last line of the cell however, presents a previously un-attested goddess name in the mi-

cro-zodiac, Ninsirsir, written ^{d}NIN.SIR$_2$.SIR$_4$. Ninsirsir, also Sirsir, is often attested with boats and boating, given the epithet "the sailor" (^{lu_2}MA$_2$.LAḪ$_4$).[304]

Aquarius:

The addition of the city god, DINGIR IRI, here is not found on the composite text. However, it appears as a frequent addition in other cells of Row B on other texts. Otherwise, this cell follows the composite text faithfully, with the exception of the writing of Ninurta with MAŠ, as seen elsewhere on this text.

Row C:

Cancer:

The beginning of this cell is not preserved on the tablet. The last line is easy to restore based on other Row C material.

Leo:

This cell is very fragmentary only two signs are preserved on the left edge. The size and spacing of the signs suggests that there were only two more signs in the break, one on each line.

Virgo:

The final verb in this section is difficult to read, but clearly negated.

Libra:

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The beginning of this cell is difficult to understand. The last line is clear, although fragmentary. However, the final two signs are to damaged to make out.

Scorpio:

This cell is badly preserved.

Sagittarius:

This cell is both badly preserved and abraded.

Capricorn:

The first line of this cell is fragmentary, although can be restored with confidence. The second line is too broken to understand without the aid of a parallel section.

Aquarius:

Only the top left corner of this cell is preserved.

Major sign Gemini:

Material Row:

Leo:

The signs making up the name of this temple are clear enough, but I have not been able to find an established temple that fits the reading. The final line of this cell is too fragmentary to allow for a reading of the name of this stone.

Sagittarius:

While this cell is only preserved on the left edge, restoration is possible thanks to its inverse relationship with the Calender Text VAT 7815. It seems that the Calender Text material

often shows an inverse relationship with the micro-zodiac material, where the contents of a Major and minor sign of one will be related to the same signs of the other, only with the minor sign as a Major sign, and the Major sign as a minor sign. For example, this Material Row section can be found on VAT 7815 under Sagittiarius-Gemini. This relationship does not hold for all of the rows. Right now it seems that only the Material Row sections exhibit this behavior.

Capricorn:

This section can be restored from the relevant cells contained on Text 3 (BM 34572) and Text 5 (BM 39680). While there are not many examples throughout the corpus of parallel Material Row sections, the few examples that do exist show that the contents of one Major-minor sign pair in the Material Row will be the same under the same Major-minor sign pair on another tablet. Despite the fact that not all of the Material Row is preserved for the entire micro-zodiac, these few parallel sections strongly suggest that a unique set of 144 cells could be constructed for the Material Row.

Aquarius:

This cell can be restored from BM 34572.

Pisces:

Only the left edge traces of three signs are visible. Although presumably this cell could be restored from the same cell on BM 34572.

Row B:

Leo:

The cell presents a few differences from the composite text. Where we would expect the Ekur to be mentioned, instead this text only has E_2, "the temple" of Enlil. In a sense, this is an understandable substitution, because the Ekur was Enlil's temple in Nippur. But as one of the most famous temple names in the cuneiform corpus one would expect its full name to be included in the text when needed. At the end of this section the command to libate water, written A.MEŠ BAL-qi_2 in the composite text, is shortened to A BAL.

Virgo:

This cell allows to completely restore the same cell in the previous row. Interestingly, where the composite text has BAD KA_2 at the beginning, our text has DINGIR IRI, the city god.

Libra:

This cell is perfectively preserved and provides the restoration of the fragmentary cell in the preceeding Major sign.

Scorpio:

This cell matches the cell in the previous Major sign.

Capricorn:

This cell matches the cell in the previous Major sign, except for the omission of the goddess Ninsirsir, which brings it perfectly in line with the composite text.

Aquarius:

This cell matches the cell in the previous Major sign, except for the omission of the city god in the first line, which brings it perfectly in line with the composite text.

Row C:

Aquarius:

Can be restored from BM 34572.

Major Sign Cancer:

Material Row:

3.6.11.5 Commentary

Obverse:

Major Sign Aries:

Row B see the composite edition and commentary.

Scorpio:

The addition of *Išḫara* mentioned above in the critical apparatus can be partially explained by her association in MUL.APIN with the sign Scorpio as one of the stars of Anu (MUL.APIN 71). Other references to her in the Seleucid corpus do not include specifically astral significance.

Row C:

Leo: The Babylonian Almanac does not offer any parallels for this section of Nisannu. The Offering Bread Hemerology advises an offering to Šamaš for the 11th of Nisannu. The Prostration Hemerology offers us a clear parallel, recommending prostration before Šamaš on the 13th of Nisannu.

Virgo: This cell is problematic. The meaning of *berâtu*, "between", is unclear in this cell, or in the wider hemerological literature. Similarly, ZUKUM, "step", does not render an easy translation especially when it is "for Gula/Aquarius".

Libra: SAG.DU finds no parallels in the hemerological tradition.

Scorpio: In contrast to the previous two cells the contents here are paralleled clearly in the Babylonian Almanac for the 20th of Nisannu, ^{giš}TUKUL *ṣa-bat* iri, "weapon, taking of a city". The Offering Bread Hemerology offers an opposite prescription, considering the 20th both favorable and a day for offering to Šamaš, whereas the Prostration Hemerology suggests prostrating to Sîn.

Sagittarius: The 22nd of Nisannu in the Babylonian Almanac is unfavorable.

Capricorn: The 25th of Nisannu in the Babylonian Almanac is unfavorable.

Major Sign Taurus:

Material Row:

Scorpio: Nippur is not associated with Scorpio in the astral-geography texts.[305] *ša-maššammū* appears under Leo-Taurus. *nīnu* (^{u_2}KUR.RA) appears under Cancer-Taurus. ^{na_4}KUR.RA is perhaps read as *šadânu,* it also appears under Aries-Virgo (CAD Š/II 36 *šadânu*).

Sagittarius: Ur is not associated with Sagittarius in the astral-geography texts.[306] *ēru*-tree appears under Aries-Cancer. *ayartu* appears under Aries-Cancer as well.

305 Steele 2015b, 215

306 Steele 2015b, 215

Capricorn: *imḫur-līmu* (^{u_2}IGI.LIM) "against a thousand", is a very common plant used in medicine and ritual texts (CAD I/J 118 *imḫur-līmu*).

Aquarius: Uruk is not associated with Aquarius in the astral-geography texts.[307] *ēru*-tree appears under Aries-Cancer.

Row B see the composite edition and commentary.

Row C:

Cancer: The Prostration Hemerology recommends prostration to Sîn on the 6th of Ayyaru. Text 7 (VAT 7847+) Leo-cancer Row C also recommends prostration before Sîn and Šamaš.

Leo: While this cell is badly preserved, the general meaning of its contents might be reconstructed from related sections in the Babylonian Almanac and Offering Bread Hemerology. The Almanac recommends not eating fish on the 9th of Ayyaru, and the Offering Bread Hemerology suggests not eating the *kintur*-frog on the 10th of Ayyaru. The one preserved UZU signs, suggests that this cell might have originally been a prohibition against eating a type of meat.

Virgo: The Babylonian Almanac contradicts this cell by noting that the 11th of Ayyaru is unfavorable for a judgement. In the Offering Bread Hemerology the 11th and 12th of Ayyaru are favorable for a judgement.

Libra: There does not seem to be an obvious parallel for this cell in the hemerological tradition.

307 Steele 2015b, 215

Scorpio: Despite the damage to this cell it seems to be paralleled in an unfavorable recommendation from the Babylonian Almanac for the 17th of Ayyaru.

Sagittarius: Very little is preserved of this cell. The Babylonian Almanac and Offering Bread Hemerology would both suggest something do with snakes for the 20th of Ayyaru.

Capricorn: Not eating fish is not paralleled in the hemerological tradition for the days relevant to this cell.

Major Sign Gemini:

Material Row:

Leo: *asu* ($^{giš.u_2}GIR_2$), "myrtle" appears under Aries-Virgo. $^{giš}UR_4.UR_4$-*u* appears under Pisces-Cancer.

Virgo: *urânu* appears under Cancer-Scorpio. *parzillu* (^{na_4}AN.BAR) appears under Cancer-Taurus.

Libra: ^{giš}LAM here could be a writing for the *lammu*-tree (*CAD L 67 lammu*). The writing ^{u_2}PA might be a mistake for ^{giš}PA which is attested elsewhere in the micro-zodiac, see Aries-Cancer. *abāru* ($^{na4}A.BAR_2$) appears under Virgo-Aries.

Scorpio: The writing ^{giš}KUR.RA might be a mistake for ^{u_2}KUR.RA, *nīnu,* which appears under Cancer-Taurus. ^{u_2}SIKIL appears under Pisces-Taurus. ^{na_4}URUDU appears under Virgo-Aries.

Sagittarius: *urṭû*-plant is attested in the medical corpus (CAD U/W 256 *urṭû*). It also appears under the inverse sign pair on Calender Text VAT 7815. For *ašgikû* see Text 5 (BM 39680).

The remaining cells in this row are commented on in Text 3 (BM 34572)

Row B see the composite edition and commentary.

Row C:

Virgo: The prohibition against eating fruit and the recommendation to go out for a judgement are not paralleled in the hemerological traditions. The 10th of Simānu is favorable in The Offering Bread Hemerology, which might suggests a successful judgement.

Libra: The 12th of Simānu in the Babylonian Almanac is favorable for a judgement, similar to this cell. However, many of the sources also note that the day signifies a well disposed god in the street, and a well disposed official for a judgment. This presents a slight problem for this cell as it also recommends not prostrating before Šamaš, the traditional god of justice.

Scorpio: This cell is not paralleled in the hemerological traditions.

Sagittarius: The 17th of Simānu is unfavorable in one source for the Babylonian Almanac. However, in the Offering Bread Hemerology the 17th if favorable.

Capricorn: See Text 3 (BM 34572)

Aquarius: See Text 3 (BM 34572)

Major Sign Cancer:

Material Row:

Scorpio: *šurmēnu*-tree appears under Cancer-Scorpio.

The rest of the cells in this row are commented on in Text 3 (BM 34572)

Row B is noticeably absent from this Major sign.

Row C:

Sagittarius: The 15th of Dûzu in the Babylonian Almanac predicts an eclipse of the moon. Interestingly, the Offering Bread Hemerology predicts an eclipse of the moon and sun for the 16th of Dûzu.

Capricorn: The prohibition against eating fish and recommendation to prostrate before Ea is not paralleled in the hemerological traditions.

Aquarius: The 20th of Ayyaru in the Babylonian Almanac and the Offering Bread Hemerology is unfavorable.

Major Sign Leo:

Material Row:

These cells are commented on in Text 7 (VAT 7847+)

3.6.12 Text 12: BM 35784

Museum Number: BM 35784 (Sp III, 309), Baked in 1977
Dimensions: 3.3 x 3.7 x 1.3cm
3.6.12.1 Description

This fragment only preserves a small part of the obverse of this table. One heading is clearly visible, while the heading directly preceding it is only preserved in traces. Beneath the headings three cells of the Material Row are present, with only one containing readable content. The text is ruled.

This small fragment preserves the beginning of the table for, Libra, Scorpio, Sagittarius. As of yet, these Material Row cells do not parallel any other known texts making their restoration difficult. Initially published as LBAT 1578.

3.6.12.2 Transliteration
Obverse:

(Labels?)	] ⌜ x x x x x ⌝ [		
(Headings)	⌜MUL GIŠ.RIN$_2$⌝	MUL GIR$_2$.TAB	[⌜MUL PA.BIL.SAG⌝
(Material Row)	[...] ⌜x⌝ [...] ⌜x⌝	E$_2$ DUMU.ZI giš GI$_6$.TAR ⌜giš⌝ KUR.DU u$_2$LAM [x] ⌜x x⌝	⌜KA$_2$⌝ [⌜giš x⌝ [⌜u$_2$⌝ [⌜u$_2$⌝ [⌜na$_4$⌝ [

3.6.12.3 Translation
Obverse:

(Labels?)	...		
(Headings)	Libra	Scorpio	Sagittarius

(Material Row)	...	Temple of Dumuzi *a type of wood* *a type of wood* *lammu*-plant stone	Gate of ... wood plant plant stone

3.6.12.4 Critical Apparatus

Obverse:

Labels: Only the faintest traces of the bottoms of wedges are preserved here. They unfortunately do not allow for any restoration of the contents.

Material Row:

Sagittarius: Only the first signs of each line are preserved which list the determinatives of each item as expected for this row.

3.6.12.5 Commentary

Obverse:

Material Row:

Scorpio: The temple of Dumuzi, E_2 DUMU.ZI, is a relatively rare cult center. There are three known names given to shrines to dumuzi in the topographical corpus:

Tintir II:22 "DU_6.ŠUBA MIN ^{d}*du*[*mu-zi* ...]" ("Mound of the Shepherd, the seat of Dumuzi")[308]

Tintir III:11 "E_2.ZI.DA.GIŠ.NU_{11}.GAL *bīt* ^{d}*dumu-zi ša*$_2$ *ki-me-tu*$_2$" ("True house of great light, Temple of Dumuzi in captivity").[309]

308 George 1992, 46–47

309 George 1992, 58–59

List of shrines in the E-šarra in Aššur :36' "MUNSUB$^{mu\text{-}un\text{-}ṣu\text{-}ub}$.E$_3$ MIN ^{d}*dumu-zi*" ("Munsub-e, the seat of Dumuzi")[310]

None of these names matches our text, however, it is possible that the writing here is just a shortened form of the gloss given in all three excerpts.

Also of note is the association of Dumuzi with the fourth month, Dûzu. Rituals involving this diety occurred near the end of this month marking the passage of the seasons into the Mesopotamian summer.[311] It might be tempting therefore to use this toponym to locate this fragment in the wider micro-zodiac series. If we were to assume that the mention of the temple of Dumuzi should occur in the fourth month, and idealy near the end of it that should place it in the Major sign Cancer and between the minor signs Aries and Gemini. However, from the preserved headings we can see the minor signs place it almost at the opposite end of the minor sign scheme.

^{giš}GI$_6$.TAR, it is unclear how to read this material, there are a few different possibilities. The first is that the error is simply one of homophony and the tar in this case should have been written as PAR$_3$ or PAR$_4$. The difficultly is that TAR and PAR$_3$ or PAR$_4$ are very different shapes and sizes of signs and not easily confused. If this were the case however, it would connect nicely with the Temple of Dumuzi in the previous line. The E$_2$.GI$_6$.PAR$_3$ was the seat of the En-priest or priestess. In Uruk this was the seat of Dumuzi. (George TinTir 285-286) ^{giš}MI.PAR$_3$ can also be read as *libāru*, a type of fruit tree.

310 George 1992, 188–189

311 Beaulieu 2003, 336

Another option is that this writing is instead a confusion with the writing of the word GISSU (GIŠ.MI) glossed as either *luḫummû* or *ṣillu*. Both of these glosses, "mud" and "shadow" respectively, are associated with the eyes in the medical corpus.[312] The TAR sign, while written very cursively, could be interpreted as a mal-formed IGI. In this case, the scribe would have confused the writing of GISSU IGI, for a type of wood because of its initial sign, GIŠ.

A further misreading possibility would be ^{giš}NAM.TAR, a well known planted glossed as *pīlu*.

The final interpretation rests on an unknown wood written ^{giš}GI$_6$ suffixed with KU$_5$ for "cut". A literal translation would them be "cut black wood". However, the problem with this interpretation is that there is a perfectly good term for "black wood" or "ebony", ^{giš}ESI.

^{giš}KUR.DU, the reading of this material is also unclear. Its connection with mountains is probably the most likely meaning behind the name. Two alternate readings could be possible. The first is that the "DU" on the end is phonetic complement otherwise not attested for the gloss, *šadû*. The second is that the "DU" is to be "RA$_2$" a phonemic substitution for "^{giš}KUR.RA" a well attested term for mountain wood. Neither case is particularly appealing, but the existence of mountain wood on lexical texts of the Hellenistic period suggests that this line of interpretation might be correct. (SpTU II 53, o I 67')

^{u_2}LAM, *lammu*-plant, the name of this plant is well attested in the lexical tradition, however it is normally designated with the determinative "^{giš}" for types of wood.

312 Veldhuis 1991

The last line of this text is unclear. However, the determinative must be either "^{u_2}" or "^{na_4}".

Sagittarius: Unfortunately only the first signs of a few of the lines of this cell are preserved, not enough to facilitate understanding any of the contents. Without any parallel section restoration is currently impossible.

3.6.13 Text 13: BM 39788

Museum Number: BM 39788 (80-11-12, 1675), Baked in 1980
Dimensions: 3.5 x 3 x 2.5cm
3.6.13.1 Description

This small fragment is inscribed only on the obverse. Before the text begins there are two vertical rulings preserved (coming down at the first "$\check{s}a_2$" and in the middle of the "sag"). A horizontal ruling sets off this text from what precedes it, however the space above is blank as preserved on the tablet (presumably the text which was above ended before the beginning of this fragment). This material is very similar to some of the sections on both the Uruk and Babylon tablets that span the entire table (as this section seems to do as well). The mention of the path of Ea, Jupiter, cities (plural), all can be found on the obverse of BM 42288 where it is one of the sections at the bottom of the table. Similar material is also found on the Uruk tablet VAT 7847+AO 6448, but there it is in the middle of the table. Both of these parallel sections also have somewhat obscure mathematical sections directly following them, so the last line here is completely within context, although currently unintelligible. The more direct parallels with BM 42288, however, suggest that this might be the bottom of a Babylon-style tablet.

Additionally, the tight script, and the column width (1cm) link it very closely with BM 39680, suggesting perhaps that this is a fragment of the lower section of the tablet to which BM 39680 is a part, it probably also contained BM 38452 on the reverse. This fragment also has firing holes.

3.6.13.2 Transliteration
Obverse:
'1.] ⌜an⌝.ta $\check{s}a_2$ ^{d}SAG.ME.⌜GAR⌝ [

'2.] ⌜*šu*⌝-*ut* $^{d}e_2$-*a* [
'3.] ⌜x⌝ IRI.MEŠ *an-nu-tu*$_2$ *ina* ⌜KI⌝ [
'4.] ⌜n+7/8⌝ *u* 1;30(MEŠ?) IGI *ša*$_2$ 15 ⌜*u*⌝ [

3.6.13.3 Translation
Obverse:
1' ... upper portion of Jupiter ...
2' ... the (stars) of Ea ...
3' ... these cities at the place of ...
4' ...

3.6.13.4 Critical Apparatus
The numbers on the last line are somewhat unclear. This section is almost certainly from the second Calculation Row which includes slightly cryptic mathematical content.

3.6.13.5 Commentary
This section of text matches the standard calculation row very closely. The numbers in the last line unfortunately do not aid in identification.

3.6.14 Text 14: BM 41041

Museum Number: BM 41041
Dimensions: not measured.

3.6.14.1 Description

This small fragment preserves part of a micro-zodiac table. The format of this text is slightly different than the other micro-zodiac tables because it lacks Row B. This omission cannot be accounted for in the differences between the tables in Babylon and Uruk, as Row B regardless of the row order always appears between Row C and Row A both of which exist on this tablet. In addition, the script and physical appearance of the text suggest that it is a casual version or excerpt of the micro-zodiac material rather than a formal copy of the entire table.

3.6.14.2 Transliteration

Obverse:

	(Gemini)	(Cancer)	(Leo)	(Virgo)
(Calculation Row)	⌜35 *šu-ut* $^{d}e_{2}$-*a ina* ^{d}⌝[UTU			
(Row C)	[]	*ana di-nu*$_{3}$ E$_{3}$	x x x x	⌜x⌝ [
	] ⌜x⌝	*ana* ^{d}UTU *liš-ken*	*bi-ki-ti*$_{3}$	[
	] ⌜x⌝	ŠE.GA	KU$_{6}$ NU GU$_{7}$	⌜x⌝ [
			GA-*bu?* NU GU$_{7}$	
(Row A)		KI ŠEG$_{3}$ ILLU	KI NIG$_{2}$ E$_{3}$	⌜x⌝ [
		ZI TU$_{15}$	IZI.ŠUB ZI KUR$_{2}$	
		⌜LA$_{2}$-*al še-im*⌝	KI *um-šu*$_{2}$ *u* U$_{4}$.	
			⌜DA⌝	

3.6.14.3 Translation

Obverse:

	(Gemini)	(Cancer)	(Leo)	(Virgo)
(Calculation Row)	...] 35 those (stars) of Ea at [sunset ...			

(Row C)	...	He should go out for judgement, he should prostrate to Šamaš, favorable.	... sorrow, he should not eat fish, he should not eat milk.	...
(Row A)	[...]	Place of rain, flood, gust of wind, scarcity of grain, [...]	Place of victory, lightning, attack of an enemy; sign of summer and light [...]	...

3.6.14.4 Critical Apparatus

Obverse:

Calculation Row: The signs are only half-preserved but the restoration of this section of the calculation row is relatively certain. The inclusion of the number 35 allows this fragment to be placed in one of two places in the micro-zodiac according to the numerical scheme, either Scorpio or Capricorn.

Row C:

Leo: The first line of this cell is difficult to read, otherwise the content is easy to restore and matches the typical material of Row C throughout the micro-zodiac.

Row B:

This tablet completely lacks any content for Row B. This is particularly interesting as none of the other micro-zodiac texts omit rows, except for the unique case of Text 11 (K 11151+). The lack of incised lines and the general cursive character of the text make me think that perhaps this text was not a formal copy of the micro-zodiac but rather a section of it excerpted for another purpose, or coming from another tradition.

3.6.14.5 Commentary

Obverse:

Row C:

Cancer: While this cell cannot be placed concretely within the micro-zodiac scheme the contents are very typical for Row C.

Leo: Like the cell before it, the contents here cannot be placed concretely within the micro-zodiac. The prohibition against eating fish only occurs under the minor-sign Capricorn.

Row A see the composite text and commentary

3.6.15 Text 15: BM 33535

Museum Number: BM 33535, Baked in 1963
Dimensions: 6.4 x 8.7 x 2.4cm
3.6.15.1 Description

First published by Hunger, this tablet represents a slightly different tradition or usage of the micro-zodiac material.[313] The scribe here has incorporated parts of the micro-zodiac series into a more comprehensive text outlining ritual actions and medical treatments. In a sense it contextualizes the material contained within the large micro-zodiac tables. It is presented here so that comparisons can be made between its content and other shared sections of the micro-zodiac series. My commentary is restricted to the two Material Rows.

However, when comparing this text and the micro-zodiac, there is a major conceptual issue in how BM 33535 operates. The two sections which parallel the micro-zodiac seem to refer to a single column of the micro-zodiac table for Sagittarius. The sections that follow each of these micro-zodiac excerpts, however, contain text relevant to the month equivalent to the minor sign of the preceeding sections (III and IV respectively). Not only does it refer to the month of the minor sign, but it also specifies that this section applies from the 1st to the 30th day of that month. There are two ways to interpret the association of a thirty-day month with the micro-zodiac sign pair. Either the conception of the micro-zodiac as having columns equated to two and a half days (one twelfth of a month) is wrong. Or, more likely, the material relevant to the month equivalent with the minor sign was excerpted out of a text dealing with

313 Hunger 2007

monthly instructions for dream incubation and then applied to the period of time demarcated by the micro-zodiac sign pair.

3.6.15.2 Transliteration

Obverse.

1. ^{mul_2}MAŠ.MAŠ *ša*$_2$ ^{mul_2}PA ŠIR.BUR.LA^{ki} ⌜^{giš}x x⌝
2. ^{giš}KIN$_2$.BABBAR ^{giš}KIN$_2$.GE$_6$ ^{giš}KIN$_2$.SA$_5$ ^{u_2}⌜NIR⌝
3. ^{u_2}LU$_2$-*an* ^{na_4}EN.GI.SA$_6$ ^{na_4}AN.NE
4. *ša*$_2$ 2-*i eṣ-pu* ^{na_4}*ḫe-e-en-zu* : SA.A

(horizontal ruling)

5. ^{mul_2}MAŠ.MAŠ *ša*$_2$ ^{mul_2}PA U$_4$ DINGIR IRI *ma-a-šu*$_2$ ^{d}⌜30 *u* ^{d}UTU⌝
6. ^{d}U.GUR EZEN ^{d}MAŠ

(horizontal ruling)

7. DIŠ *ina* ITI.⌜SIG$_4$ TA⌝ UD 1 KAM EN UD 30 KAM
8. LU$_2$ *lim-*⌜*ta-as*⌝*-su* I$_3$ ŠIM.ŠEŠ ḪE$_2$.ŠEŠ
9. TUG$_2$.AN.⌜TA.DUL⌝ MU$_4$.MU$_4$ KUŠ.E.SIR$_2$ ḪE$_2$.GAR
10. NINDA *ša*$_2$ ŠE.EŠTUB KU$_2$ KAŠ.ŠE.GA NAG
11. *li-pi-ir ina* UR$_3$ ḪE$_2$.NA$_2$
12. AN KUN NU MU$_4$.MU$_4$ DINGIR.MEŠ *mu-ši-ti*
13. KI-*šu*$_2$ *i-dab-bu-bu*

(horizontal ruling)

14. *ina* KUŠ anše *ina* SA ANŠE *ina* DUR SIG$_2$.ZA.GIN$_3$.NA
15. *tal*$_2$*-pap ina* GU$_2$-*šu*$_2$ GAR

(horizontal ruling)

16. ^{mul_2}MAŠ.MAŠ ^{giš}*ḫa-lu-ub*$_2$ MUŠEN AB SI KI

(horizontal ruling)

Reverse.

1. ^{mul_2}ALLA *ša*$_2$ ^{mul_2}PA *mu-ta-*⌜*bal*⌝[^{ki}]
2. ^{giš}*ḫa-lu-ub*$_2$ ^{giš}MES.GAM$_3$ ⌜^{u_2}⌝ [
3. NUMUN URI ^{na_4}AN.BAR ^{na_4}URUDU ^{na_4}*mu-ṣa*
4. ^{giš}SA.A

(horizontal ruling)

5. ^{mul_2}ALLA *ša*$_2$ ^{mul_2}PA U$_4$ DINGIR IRI ^{d}UTU DI.KU$_5$ KUR
6. *u* ^{d}ŠUL.PA.E$_3$.A BAD KA$_2$

(horizontal ruling)

7. DIŠ *ina* ITI.ŠU TA UD 1 KAM EN UD 30 KAM
8. LU$_2$ *lim-tas-sa* I$_3$.GIŠ SA(^{u_2}?) BA LI ZA MA LI
9. ḪE$_2$.ŠEŠ *li-tar-ri-šu*$_2$ KUŠ.E.ŠIR$_2$ TUR(?).RA GAR-*un*
10. GU$_2$.GAL ḪE$_2$.KU$_2$ GU$_2$.TUR ḪE$_2$.KU$_2$

11. GIŠ.NA$_2$ *li-is-kup$_3$-ma* ḪE$_2$.NA$_2$
12. ^{d}15-*šu$_2$* KI-*šu$_2$* KA-*ub*

(horizontal ruling)

13. *ina* KUŠ ANŠE.KUR.RA *ina* SA ANŠE.KUR.RA
14. *ina* DUR SIG$_2$ SA$_5$ *tal$_2$-pap ina* GU$_2$-*šu$_2$* GAR-*an*

(horizontal ruling)

15. ^{mul_2}ALLA MUŠEN *qa-qu-u$_2$* ^{giš}HAŠḪUR

(horizontal ruling)

3.6.15.3 Translation

Lines 1-6 on the obverse, and 1-6 on the reverse are my own, the rest are taken from

Hunger's edition of the text.

Obverse: Gemini

1. Gemini of Sagittarius: Lagaš x-wood
2. white *kiškanû*-wood, black *kiškanû*-wood, red *kiškanû*-wood, x-plant,
3. *amīlānu*-plant, *engisû*-stone, *anzaḫḫu*-stone,
4. of the second, double (it), x-stone : SA.A

{horizontal line}

5. Gemini of Sagittarius: Day of the city god, the twins Sin and Šamaš
6. Nergal, the feast of Ninurta.

{horizontal line}

7. In Simanu, from the 1st to the 30th day,
8. let the man wash himself, let him anoint himself with the oil of the *šimeššalû*-plant,
9. let him be clothed with a blanket, let him put on a sandal,
10. let him eat bread (made) from *arsuppu*-barley, let him drink beer (made) from *arsuppu*-barley,
11. let him put on a headdress, let him sleep on the roof,
12. let him not be clothed ..., (and) the gods of the night
13. will talk with him.

{horizontal line}

14. You wrap (a medication) in a (piece of) hide of a donkey, with a sinew of a donkey, with a thread of red wool,
15. you place (it) on his neck.

{horizontal line}

16. Gemini: *ḫalub*-wood, a bird ...

Reverse: Cancer

1. Cancer of Sagittarius: Mutabal

2. *ḫalub*-wood, *šaššūgu*-wood, x-plant,
3. seed of *urṭû*-plant, iron, copper, *mūṣu*-stone,
4. cat-wood?
{horizontal line}
5. Cancer of Sagittarius: Day of the city god, Šamaš the judge of the land
6. and Šulpaea, opening of the gate.
{horizontal line}
7. In month Dûzu, from the 1st to the 30th day,
8. let the man wash himself, let him anoint himself with oil of ...,
9. let him ..., let him put on a small sandal,
10. let him eat chickpeas, let him eat lentils,
11. let him lie still (on) a bed and sleep,
12. his goddess will talk with him.
{horizontal line}
13. You wrap (a medication) in a (piece of) hide of a horse, with a sinew of a horse,
14. with a thread of red wool, (and) place (it) on his neck.
{horizontal line}
15. Cancer: bird *qaqû*, apple tree.

3.6.15.4 Critical Apparatus

The tablet is almost perfectly preserved. There are two lines which are unclear, line 16 on the obverse, and 8 on the reverse, the first of which is commented on in Hunger's edition.

3.6.15.5 Commentary

Material Section:

Gemini: Lagaš is not associated with Gemini in the astral-geography texts.[314] The *kiškanû*-tree ($^{giš}KIN_2$) is well attested in medical and magical texts (CAD K 453 *kiškanû*). Here, it is given three color designations, white, black, and red, all of which are attested in the lexical entries. *amīlānu*-plant appears under Gemini-Capricorn. *engisû*-stone appears under Aries-Scorpio. *mil'u*-stone (^{na_4}AN.NE) is related to *anzaḫḫu* which appears under Leo-Aries.

314 Steele 2015b, 214

Cancer: The *ḫaluppu*-tree is well attested in the medical corpus (CAD Ḫ 56 *ḫaluppu* e). For ^{giš}MES.GAM$_3$ see under Aries-Leo. *parzillu* (^{na_4}AN.BAR) appears under Cancer-Taurus. *werû* (^{na_4}URUDU) appears under Virgo-Aries. The *mūṣu*-stone is well attested as a treatment for the *mūṣu*-disease (CAD M/II 246 *mūṣu* 2).

3.7 Conclusion

The texts presented here make up all of the known micro-zodiac exemplars. They expand significantly the series as it was known from Sachs' early list in his JCS article and Weidner's edition. I am sure there are many more pieces to find, and judging by the size of some of the fragments edited here, for instance Text 12 (BM 35784), they might not look like the classic examples from Uruk.

What is clear from the additional texts and re-edited material is that the micro-zodiac series itself is a remarkably stable body of text. While there are small differences in orthography, and re-ordering of rows, the parallels found between cells and rows hold true throughout the entire series. Whether it is the regular repetition of Row A and Row B cells or the rare parallel Material Row cell in the present corpus, the idea of the micro-zodiac series as a whole text was certainly present in the minds of the scribes who copied these tablets.

There are a few important points to come out of the new editions that bear emphasizing. Through the addition of more fragments from different parts of the series the very regular paradigmatic structure is more evident than in the earlier edition. With more manuscripts from Babylon, a strong case can be made for two traditions (Uruk and Babylon) that structured the text somewhat differently but still used the same content in the correct Major and minor sign pair location within the table. Muddying this otherwise clear picture, are texts like Text 1 (BM 42288+) which presumably come from Babylon but use the Uruk row order, but

lack the images otherwise found on Uruk tablets. Likewise, Text 11 (K 11151) which also presumably comes from Babylon, omits Row A, and also follows the Uruk row order.

While there is not enough evidence yet to make a firm case for the route of transmission for the micro-zodiac, it is suggestive that while the tablets from Babylon lack images, they retain the labels. The fact that the labels are copied on to the Babylon tablets suggest that they were copied from a source text which itself had images. This might suggest that the Uruk tradition was the original source of the micro-zodiac in its complete form.[315]

Another important finding came from the analysis of the Row C material, which was linked closely with the hemerological tradition, especially the Babylonian Almanac. When correlations are found between content within the Row C cells and the Almanac they occur on days that would necessitate assigning each column with a two and a half day period. This means that the micro-zodiac series was following the micro-zodiac of 12 scheme, which does not model ideal lunar motion (this scheme is explained in more detail in the next chapter).

For instance, on the reverse of Text 7 (VAT 7847+) the Row C cells for Virgo-aquarius and Virgo-pisces both have close parallels with sections in the Babylonian Almanac for Month VI. The Virgo-aquarius cell is paralleled with the 15th of the month, while the Virgo-pisces cell parallels both the 17th and 18th. If we were to assign dates to the columns from the micro-zodiac of 13 these two cells would be assigned the 12th-13th, and 14th-16th respectively, whereas the micro-

315 This hypothesis still leaves room for texts like Text 11 (K 11151) to exist outside of this timeline.

zodiac of 12 gives 14th-16th and 15th-17.5th.[316] In both cases only the dates from the micro-zodiac of 12 allow for the parallel with the material from the Babylonian Almanac.

It is also important to note that the Initial Omen makes mention of the moon being eclipsed in the Major sign. Since a lunar eclipse can only occur around a full moon during the middle of the Babylonian lunar month, this would necessitate the moon being in that sign at the middle of the month. Thus, the minor signs cannot be equated the motion or position of the moon, as the minor signs begin with the same sign as the Major sign. This observation coupled with the Row C correlations above makes a good case for the minor signs and thus the columns of the micro-zodiac having no association with the moon. We are left with the Major sign associated with the location of the Sun in the ecliptic, and each column representing one twelfth of its movement through one zodiacal sign. Outside of the Initial omen and a rare mention in the Calculation Row the moon is entirely absent from the micro-zodiac texts both in the content and the scheme of the series.

316 It is interesting that in cases where there is a half-day often the parallel is found in the next whole day, i.e. the 18th parallels with 17.5th.

4 Related Texts

4.1 Introduction

The micro-zodiac series uses a complex paradigmatic structure based on the zodiac to organize a diverse group of traditional forms of Mesopotamian knowledge. The structure and genres included in the micro-zodac fit well within the corpus of Late Babylonian astrology. Associations between constellations or zodiac signs on one side and a wide selection of scholarly knowledge on the other are common in the textual material from Babylon and Uruk. Scholars of this period were engaged in the production of new texts that sought to compile excerpts from separate sources into new forms and structures. In this chapter I will approach the micro-zodiac from two external perspectives. The first part will look at how the methodology, numerical scheme, and terminology of the micro-zodiac texts is paralleled by other texts. The second part will conduct a brief survey of material that shares similar content and organizing principles with the micro-zodiac.

As mentioned earlier in Chapter 2, the astrology of this period was undergoing a number of shifts, many of which are evidenced in the micro-zodiac series. The previous focus on royal and state affairs was giving way to a more personal astrology concerned with, among many things, the birth of individuals as well as their daily actions. At the same time, astrology, and other forms of divination were shedding their reliance on observation as a notional setting for determining ominous events; in its place calculated astronomical data and/or schemes de-

rived from the calendar were used. In some cases this process was closely linked to the hemerological tradition, which predicted outcomes for the client based on a calendric system.[317] During this period astrology became a highly paradigmatic science, ripe for hermeneutic reasoning through analogical connections.

This shift in astrology is best shown by new types of texts that summarized and essentialized previous forms of knowledge. These tablets took excerpts, ideas, and concepts from other sources and combined them into new texts often making use of a unifying theme or scheme to tie the sections together. In her book on divination Ulla Koch divides these late astrological texts into "compilation" and "combination" texts.[318] Compilation texts organized a diverse set of contents on to one tablet. They resemble traditional texts by borrowing similar content and form, if not outright copying sections. The texts could be collected based on a unifying theme, or they could be included in the new text in an *ad hoc* manner. It seems likely that these compilations were not thought of as new texts themselves, as they are generally not recopied in full. These texts are usually in a linear format with each excerpt occupying its own section delineated by horizontal rulings.

Combination texts on the other hand, collected and organized a diverse set of contents under a unifying scheme. Koch, in her book, uses this term to designate just the micro-zodiac and Calendar Texts. Often the contents included in the text came from different genres of

317 Steele notes that the equivalencies between the zodiac signs and calendar months increased the potential of interpretative data for the new astrological texts (Steele 2015a, 188).

318 Koch 2015, 203–208

knowledge, whereas compilation texts might utilize different excerpts from the same genre. When related excerpts on the combination texts can be traced back to a common source, they are often found in proximity to each other but not copied directly in the same order. This method of copying content but not identical structure illustrates the editorial process that went on in the selection and placement of the content in the new text. Furthermore, the combination texts differ from the compilations texts in that they are a new text and can be copied, as we have seen with the two colophons on the micro-zodiac texts which refer to earlier micro-zodiac sources. These texts also are often structured as a table with the unifying scheme organizing the columns and rows.

This chapter will deal with a wide range of compilation texts that represent the work of Late Babylonian scholars summarizing different forms of knowledge. Next it will cover combinatory texts, of which the micro-zodiac and the Calender Texts are prime examples. In this chapter these combinatory texts will mostly be represented by the group of Calendar Texts, as the micro-zodiac texts were treated in detail in Chapter 3. The combination texts essentialize information by assigning an overarching schematic structure to its organization.

I use *summarize* and *essentialize* on purpose here, because I see these two terms as exemplifying the processes behind the creation of the compilation and combination texts. The compilation texts attempted to *summarize* or review the salient details about a particular subject or subjects. For instance a text might collect a diverse set of connections between constel-

lations or zodiac signs and outcomes for business (e.g. BM 47494[319]). No definitive result is given, but all the relevant excerpts are included. Moving on to the combination texts, here the scribes attempted to *essentialize* the information gathered. Rather than a summary of pertinent information these texts assign a rigid structure to the text (the micro-zodiac for example) which emphasizes the underlying analogical reasoning of the diverse set of contents. Here, the creation of a text was more than collecting relevant information. A significant amount of thought had to go into the organization of data and the conception of a unifying structure. As a result, these tablets did function as new texts and were copied after their initial composition.

Recent scholarship has begun to recognize the role these compilation and combination texts played in the reception of astrological knowledge in the Late Babylonian period. Whether through combination or compilation these Late Babylonian astrological texts represent a new form of astrological scholarship that was concerned with the interconnections between different aspects of a single science or connections between multiple forms of scholarly inquiry. In a sense, they functioned as astrological handbooks, either collecting relevant passage, in the case of the compilation texts, or laying out new associations, in the case of the combination texts. The very nature of these texts, their interconnectedness, make them excellent resources to study the transmission of knowledge across both periods and cultures. Recent work, especially in the genre of astral-medicine, has used the various types of compilation texts to trace the existence of particular themes throughout different scholarly contexts.

319 Hunger 2004

Both John Wee and Mark Geller have used a number of the texts in the wider Late Babylonian astrological corpus to make the case for the existence of concepts otherwise only attested later in history.[320] The tablets that make up their source material are, for the most part, all compilation texts that summarized astrology and medicine in thematic ways such that novel conclusion could be drawn from the collected evidence.

With all of these developments one of the primary problems remains, how were the texts used? Unfortunately we have very little concrete evidence regarding the use of these new forms of astrology.[321] Despite the existence of astrological concepts such as triplicities, astrological tables, and other paradigmatic systems of knowledge, the only evidence we have for the practical use of late astrology is in the horoscopic tradition and to some degree the astral-medicine texts mentioned above. To this end I will start this chapter by looking at the micro-zodiac scheme in context.

4.2 References to the micro-zodiac

Unfortunately there is not much evidence for the micro-zodiac texts outside of the texts themselves. We do not have any name for these texts preserved in either catalogs or as a title referred to on another text. Rather, a few texts might preserve mentions of the numerical scheme or reference the idea of the micro-zodiac.[322] This leads us to ask, what was the

320 Wee 2015; Geller 2014

321 Koch 2015, 198

322 There is evidence referring to the *Dodekatemoria* and Calendar Texts numerical schemes: LBAT 1593: 15', "(For) the animal(s) of 13 and 4,37 you take one with the other, you salve, feed, and fumigate the patient with the stone, herb, and wood (respectively)." (Reiner 2000). 13 in this case refers to the 13° movement of the moon per day when the *Dodekatemoria* is applied to the calendar, and 4,37 refers to the 277° movement of

methodology behind the text, how was the micro-zodiac scheme utilized, and finally what was the native terminology and syntax used to refer to the micro-zodiac? These are all large questions, but thankfully recent scholarship has provided evidence to at least address them in a preliminary fashion. In particular, we can say concrete things about the last two, the micro-zodiac scheme and its terminology.

4.2.1 Method – Diviner's Manual

While the Diviner's Manual[323] is earlier than the micro-zodiac texts, it outlines some general theoretical principles of divination that are relevant to the micro-zodiac. In a sense it provides a general summary of the state of astrological practice at the end of the Neo-Assyrian empire. The standard omen series used by the scholars employed by the Neo-Assyrian king for the most part still reflected separate and diverse traditions; these series were concerned with ominous events in the landscape, or in the sky, or provide rules for interpretating forms of provoked divination, oil, liver, smoke, and others. However, the Diviner's Manual suggests that the methods employed by the advisors were taking into account the analogical power of intertextuality within the diverse group of divinatory texts.[324]

The text repeatedly informs the reader that signs observed on the earth are relevant for signs observed in the sky and vice versa. In his discussion of the text Oppenheim summarized

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the moon per day in the Calendar Text scheme.

323 Oppenheim 1974

324 Oppenheim notes that while there are hints within the textual record that divinatory sciences could be combined across disciplines, this text represents the only time where the method is expressly laid out (Oppenheim 1974, 208).

the methodology of the text by bringing together the three summary sections of the text, they are worth quoting in full:[325]

22 14 DUB.MEŠ *i-da-at* KI-*tim ki-i* TUKUM.BI [iti]APIN.DU$_8$.A.TA
23 SIG$_5$-*šu-nu* *u* ḪUL-*šu-nu kaš-še-du-um*
24 *i-da-at* AN-*e it-ti* KI-*tim-ma ṣa-ad-da i-na-aš$_2$-ša$_2$-a*

"Fourteen tablets with signs occurring on earth, (the series) 'If from (the month) Apinduha'[326], their good and their evil portents are in harmony. The signs in the sky just as those on the earth give us signals."

36 11 DUB.MEŠ *i-da-at* AN-*e ki-i* MUL *ša$_2$ ina* IGI-*šu$_2$ ṣip-ra*
37 *ina* EGIR-*šu$_2$* KUN GAR-*nu* IGI-*ma* AN-*e* ZALAG-*ir* SIG$_5$-*šu$_2$-nu u* ḪUL-*šu$_2$-nu kaš-še-di*
38 *i-da-at* KI-*tim it-ti* AN-*e ṣa-ad-du i-na-aš$_2$-ša$_2$*
39 AN-*e u* KI-*tim* UR.BI GIŠ.GIM.MA *ub-ba-lu-ni*
40 *a-ḫe-en-na-a ul* BAR.MEŠ AN *u* KI *it-ḫu-zu*

"Eleven tablets with signs occurring in the sky according to (the series) '(If) a star is seen that has a crest in front and a tail behind and the sky turns light'; their good and evil portents are in harmony. The signs on earth just as those in the sky give us signals. Sky and earth both produce portents, (though appearing separately they are not separate (because) the sky and earth are interrelated[327]."

53 ŠU.NIGIN 24 *ṭup-pi i-da-at* AN *u* KI-*tim*
54 *ša$_2$* SIG$_5$-*šu$_2$-nu u* ḪUL-*šu$_2$-nu kaš-še-du-u$_2$*
55 GISKIM *ma-la ina* AN-*e ib-šu-u$_2$ ina* KI-*tim* IGI-*ru*
56 *ina* ŠA$_3$-*šu$_2$-nu tam-mar an-nu-u$_2$* NAM.BUR$_2$.BI-*šu$_2$-nu*

"All together (twenty-five) tablets with signs (occurring) in the sky and on earth whose good and evil portents are in harmony. You will find in them every sign that has occurred in the sky (or) has been observed on earth. This is their *namburbi*."

325 Oppenheim 1974, 199

326 This is a rare Sumerian omen protasis functioning as the catch-line to a text.

327 The idea of pairing items is also found in the Sagittarius section of Row A where burning (*qimītu*) and thunder (*izišubbu*) are paired.

These three passages make it clear that this text was trying to inform the reader that divinatory interpretation had to be performed in parallel; terrestrial and celestial omens were deeply connected. Furthermore, the inclusion of a simple hemerological table, and the instructions to study favorable days on a few texts suggests that this type of divination was to be incorporated as well.[328] The bringing together of traditions and the recognition that divinatory meaning crossed discipline boundaries find similarity in the diverse content included in the micro-zodiac.

4.2.2 Scheme and Terminology

The micro-zodiac scheme, as present on the micro-zodiac texts, is very simple as we saw in Chapter 3. Each of the twelve signs of the zodiac is subdivided into twelve more zodiac signs. Both the Major signs, and the minor signs are always in the order of the zodiac, although the starting place of the minor signs shifts such that the first minor sign of the sequence is always the same as the Major sign under which it appears. For the micro-zodiac texts edited in Chapter 3 there is little more than that. Each of the Major signs has twelve minor signs that rotated to the left with the progression of each Major sign. There are also a few astronomical texts that make use of the subdivided zodiac to locate stars and events in the sky. The micro-zodiac scheme gets more complicated however, when it is applied to fixed dates in the calendar. The scheme then has two major use cases. The first is the simple subdivision of the zodiac used in the micro-zodiac texts edited in Chapter 3 and in the astronomical texts.

328 K. 2847 and K. 2848 both include the table at the end.

The second use case is in the application of the micro-zodiac, and specifically locations of the sun and moon (real or unreal) to dates in the calendar.

There are two methods by which the micro-zodiac could be applied to the calendar. The first models lunar motion through the zodiac and the second is a mathematical modification of the first with no astronomical significance. These two schemes are referred to in the literature as the *Dodekatemoria* and Calendar Text schemes. The mathematical background for how they operate was covered extensively by Brack-Bernsen and Steele.[329]

The *Dodekatemoria* scheme models lunar motion by advancing the location the moon by 13 degrees every day.[330] This results in the moon traveling through the entire zodiac and passing through the first sign again in one month. In this scheme the sun and moon start each new month at the same point in the zodiac. Its application on to the calendar results in the sun remaining in one sign for the entire month and the moon moving between signs every two or three days. One unique result of this scheme is that the moon remains in the same sign as the sun for five days, more than any other sign for the month. This is because it begins in a sign and also ends the month again in the same sign. This scheme is referenced in the text LBAT 1593 where it is called *umāmu ša* 13, "the animals(?) of 13".[331] The scheme is also used to organize the contents of BRM IV 19 and 20 which will be covered later in this chapter.

329 Brack-Bernsen and Steele 2004

330 This is obviously not a perfect model of celestial motion but it approximates the movement of both the sun and moon. Brack-Bernsen and Steele in the article characterized it thus: "astrologically convenient rather than astronomically accurate."(Brack-Bernsen and Steele 2004, 104)

331 Reiner 2000, 424

The Calendar Text scheme is a mathematical inversion of this scheme which is driven by the position of the moon rather than the position of the sun. The positions of the moon from the *Dodekatemoria* scheme are put in order with their equivalent sun locations now presented out of order. These new positions advanced by 277 degrees (or 9 signs and 7 degrees). Any attempt to assign the movement of a celestial body to the locations computed through the Calendar Text scheme results in widely erratic and completely unrealistic movement. It is also referenced in LBAT 1593 where, not surprisingly, it is called "the animals(s) of 4,37 (277)"[332] The scheme is used in a few texts, many of which will be covered at the end of this chapter.

Finally, both of these numerical schemes are present together on one tablet. BM 47851[333] lays out on each line first the *Dodekatemoria* scheme with the date in Month I and the location in the zodiac[334] advancing by 13 degrees, following on in the same line is the Calendar Text scheme also for Month I but with the location advancing by 277 degrees. This text shows that the mathematical relationship between the *Dodekatemoria* and Calendar Text schemes was important to their identity as zodiacal paradigms. This is direct contrast to the much simpler micro-zodiac scheme which only subdivided each sign by twelve without attempting to model lunar motion.

332 Reiner 2000, 424

333 Hunger 1996

334 The computed locations in this text are actually given as months and days, but they apply equally to signs of the zodiac and degrees.

The micro-zodiac scheme is best illustrated in a sub-section of TCL 6, 14 which was first edited in its entirety by Abraham Sachs in his article on Babylonian horoscopes.[335] He treated the text in an appendix to the main article, and presented an edition and commentary on this interesting astrological work. The majority of the text is concerned with birth omina, specifying the astrological significance of the appearance or disappearance of planets and the sun and moon on the day of a child's birth. However, a section on the obverse preserves some information about the micro-zodiac scheme and perhaps some context for its use.

The text can be divided into two main parts with smaller sections included within. The latter part of the tablet concerns birth omen as mentioned above and was the primary reason Sachs included it in the appendix of his article. However, the first part of the tablet provides some interesting data on the micro-zodiac scheme and suggests a connection between the scheme and some of the content contained within the micro-zodiac tables. Before going into the content of this first part of this text it is worth noting that the two sections both end with a line recording the amount of space left on a writing board.[336] The later section also contains an additional note of blank space in the middle of the text. This notation suggests that these snippets of text were both copied from of other texts, presumably on wax writing-boards. The other two sections of text which make up the later part of this text omit any mention of a method of copying or a source.

335 Sachs 1952

336 TCL 6, 14:21': 3 ŠU.SI *qaq-qar* ^{giš}*le-u*$_5$ *muš-šu-ru*, "3 fingers of space left free on the board."

TCL 6, 14[337]:

obv.

6' [^{mul_2}]LU.MAŠ *a-na* IGI-*ka ina pit-qat$_2$ ša$_2$* NA$_4$ U$_4$ *u iṣ-ṣi*

7' [ ] ḪA.LA.MEŠ *ina en*-1 ^{mul_2}LU.MAŠ *ša$_2$* ^{d}⌜UTU⌝

8' [ ]⌜^{mul_2}⌝LU.MAŠ *ina en*-1 ^{mul_2}LU.MAŠ *ša$_2$* ^{d}30 E-⌜x⌝

9' [ ]⌜x⌝ TA sag-*šu$_2$* EN TIL-*šu$_2$ a-na muḫ-ḫi* MUL.MUL

10' ⌜30⌝ U$_4$.MEŠ 1 DANNA *šu-u$_2$* 2 ½ *u$_4$-mu a-na* EN-1 ḪA.LA ŠID-*ma*

11' 12 UZU.MEŠ ḪA.LA *ša$_2$* ^{mul_2}LU$_2$.ḪUN.GA$_2$ *ip-pal-ka*

12' [2];⌜30⌝ GAM 12 12 UZU.MEŠ ḪA.LA *ša$_2$* ^{mul_2}LU$_2$.ḪUN.GA$_2$ DU-*ma* 30

13' [30] U$_4$.MEŠ 12 UZU.MEŠ ḪA.LA *ša$_2$* ^{mul_2}LU$_2$.ḪUN.GA$_2$ *i-gam-mar*

14' [ḪA.LA] SAG-*ti* ^{mul_2}LU$_2$.ḪUN.GA$_2$ MU-*šu$_2$* : *ša$_2$-ni-tum* ḪA.LA MUL$_2$.MUL$_2$ MU-*šu$_2$*

15' [3]-⌜*tum*⌝ ḪA.LA ^{mul_2}MAŠ.MAŠ MU-*šu$_2$* : 4-*ni-tum* ḪA.LA ^{mul_2}ALLA MU-*šu$_2$*

16' [5-*i*]-⌜*tum*⌝ ḪA.LA ^{mul_2}UR.A MU-*šu$_2$* : 6-*i-tum* ḪA.LA ^{mul_2}ABSIN MU-*šu$_2$*

17' [7-*i*]-*tum* ḪA.LA ^{mul_2}GIŠ.RIN$_2$ MU-*šu$_2$* : 8-*i-tum* ḪA.LA ^{mul_2}GIR$_2$.TAB MU-*šu$_2$*

18' [9]-⌜*i*⌝-*tum* ḪA.LA ^{mul_2}PA MU-*šu$_2$* : 10-*i-tum* ḪA.LA ^{mul_2}MAŠ$_2$ MU-*šu$_2$*

19' ⌜11⌝-*i-tum* ḪA.LA ^{mul_2}GU MU-*šu$_2$* : 12-*i-tum* ḪA.LA ^{mul_2}ZIB MU-*šu$_2$*

20' PAP 12 UZU.MEŠ ḪA.LA *ša$_2$* ^{mul_2}LU *ša$_2$* ^{d}30 *u* ^{d}UTU *ina* ŠA$_3$-*bi* DIB.MEŠ *uk-tal-lim-ka*

obv.

6' [...] for finding the zodiac sign in (regards to) the brickwork of stone, plant, and wood

7' [...]divisions in the first of the zodiac of the sun

8' [...] zodiac, in the first of the zodiac of the moon

9' [...] from its beginning to its end as far as of Taurus

10' 30 days is 1 *bēru*, of it 2 ½ days is the count for one division

11' the 12 parts of the division of Aries answers for you

12' [2];30 multiplied by 12, 12 are the parts of the division of Aries, and (the result is) 30

13' [30] days, the twelve parts of the division of Aries are complete.

14' [The division] at the head Aries is its name : the second division Taurus is its name

15' the [third] division Gemini is its name : the fourth division Cancer is its name

16' the [fifth] division Leo is its name : the sixth division Virgo is its name

17' the [seventh] division Libra is its name : the eighth division Scorpio is its name

18' the [ninth] division Sagittarius is its name : the tenth division Capricorn is its name

19' the eleventh division Aquarius is its name : the twelfth division Pisces is its

337 Sachs 1952, 65–75

name.

20' Total: 12 parts of the division of Aries which the moon and sun in its midst pass through, it was shown to you.

I have chosen to translate UZU, *šīru*, here as "part". It is used throughout this text to refer to the twelve minor signs under a Major sign, but only in the plural preceeding ḪA.LA (*zittu*)[338]. The word itself is well attested in the divinatory corpus, especially in extispicy where it refers to either the entire exta, or a protuberance on it.[339] It also of course can mean "flesh" or a cut of meat, often used to refer to offerings before the gods.[340] In this context the two semantic valances are combined, it is not only a discreet element of divinatory inquiry (minor sign of a Major sign) it is also a piece of something which has been subdivided or cut (i.e. the Major sign).

The focus here is on a small section of text from line 6 to line 20 on the obverse, a section of text which describes in schematic terms one twelfth of the entire micro-zodiac scheme, for the Major sign Aries. The section of text begins with an important, but damaged, line of text:

6' "[...] ⌜^{mul_2}⌝LU.MAŠ *ana* IGI-*ka ina pit-qat$_2$ ša$_2$* NA$_4$ U$_2$ *u iṣ-ṣi*"

"[...] for finding the zodiac sign in (regards to) the brickwork of stone, plant, and wood"

It seems reasonable that this line connects the Material Row of the micro-zodiac tables explicitly with the scheme of the same name. In a sense this line provides a reason behind

338 I have translated *zittu* as "division" to emphasize the semantic connection with something being subdivided (CAD Z 139 *zittu*).

339 CAD Š/III 121 *šīru* A 4a.

340 CAD Š/III 119 *šīru* A 3b.

their compilation, in order to locate the stone, plant, and woods appropriate to the correct zodiacal signs. Before the mention of "stone, plant, and tree" in the line there are two signs read by Sachs as "E_2 ŠU.MIN" he interpreted this as a syllabic writing for "*pit-qat*$_2$"[341] or "brickwork."[342] This is a promising solution as the first item of each of the Material Row cells includes a temple, or even in some cases the bricks, SIG_4,[343] of a temple.[344] Some added complexity comes from "*ša*$_2$" directly following this section, which suggests a genetival relationship between the brickwork and the other three types of medical ingredients. This header then continues with some clarifying lines, which are also unfortunately damaged. The next two lines explain that the sun and moon are each in signs. The next line gives the scope of the section of the micro-zodiac to follow:

9' [...] TA SAG-*šu*$_2$ EN TIL-*šu*$_2$ *a-na muḫ-ḫi* MUL.MUL

"from its beginning to its end as far as Taurus"

This line clearly marks that the material to follow is only concerned with the first zodiac signs, Aries, and the minor signs contained within Aries. The mention of going up to Taurus suggests that the micro-zodiac was conceived of as an entire line of minor signs contained under the Major signs. Despite the fact that the moon travels through the entire zodiacal sequence plus one more sign in one month, the minor signs are still thought of as part of a se-

341 CAD P 440 *pitqu*.

342 Sachs 1952, 72, n. 53

343 Although SIG_4 is normally read *libittu* (CAD L 178 *libittu* 2).

344 SIG_4 can be found in the Material Row for the cells Libra (brickwork of Ištar's temple) and Scorpio (brickwork of Uruk) on the Leo side of Text 7 (VAT 7847+).

quence of 12 signs under a Major sign. The end of this list of minor signs for the Major sign Aries ends with the line: "Total: 12 parts of the division of Aries which the moon and sun in its midst pass through, it was shown to you." This final summary of the section suggests that the micro-zodiac was conceived as the twelve minor signs under the Major sign. This scheme must them represent a purely schematic system, as it does not accurately model the movement of the moon. The *Dodekatemoria* and Calendar Text numerical schemes serve as a way to apply this subdivision by twelve onto concrete days of the calendar, in the case of the former accurately reflecting the movement of the moon, and in the case of the latter modifying the scheme through a process of inversion.[345]

This section only deals with the major sign Aries because it is the first sign and therefore illustrates the paradigm by summarizing the twelve minor signs of Aries. The use of Aries as the paradigmatic month is present in other texts.[346] This excerpt from the larger text is remarkable for its clear explanation of the micro-zodiac scheme. The inclusion of a single sign and the language it uses suggests that this section was intended to explain the concept of the micro-zodiac and the relation between Major and minor signs.

Another group of texts explain the syntax and terminology behind the micro-zodiac scheme in reference to astronomy. These texts locate the minor-signs of the micro-zodiac

345 Brack-Bernsen and Steele 2004

346 LBAT 1593 discussed briefly above names the *Dodekatemoria* and Calendar Text schemes by their first entry in Aries. Likewise, LBAT 1504 discussed below uses Aries as the paradigmatic example for locating eclipses in the micro-zodiac.

scheme using the position of the *ziqpu* stars.[347] These texts inform our understanding of the micro-zodiac material by illuminating the ways in which the astrological scheme itself could be used outside of astrology proper. Just like the Major zodiac signs these micro-zodiac locations were not visible on the ecliptic. Thus, the culminating *ziqpu* stars were used to derive the locations of the micro zodiac signs as they crossed the horizon.

The published texts all follow a similar format. They are generally sub-divided into multiple sections marked with horizontal rulings. Each section covers all or part of one Major sign. A brief summary of the sign is given in the first section with the total distance for the entire Major sign between two culminating *ziqpu* stars recorded. In some cases this includes the entire sign e.g., A 3427, in others the text only mentions half of the sign e.g., LBAT 1499. After this introductory section the minor signs of the Major sign are enumerated with explicit ordinal numbers marking their location with the micro-zodiac scheme. The entries can be divided with each mention of a new "division" (ḪA.LA) of the Major sign. Here, the formula: "the *n*-th division of Major sign *x* is minor sign *y* of Major sign *x*" is used to make explicit the connection between the minor and Major signs and the position of the minor sign within the micro-zodiac scheme. The text continues in each section with the KUR occurring on a certain day in a sequence of months, a star or planet flaring, and finally the location of this minor sign in reference to a culminating *ziqpu* star. Read all together these sections note the time at which the minor signs under a certain Major sign cross the horizon.

347 Rochberg 2004b

The Major and minor signs in the micro-zodiac are related through a syntactic construction which expresses the micro-zodiac relationship through a grammatical relationship: "minor sign *ša*$_2$ Major sign." Our only clue for this relationship from the micro-zodiac texts themselves comes from Text 15 (BM 33535), the first lines on the obverse and reverse read:

1 obv.	^{mul_2}MAŠ.MAŠ *ša*$_2$ ^{mul_2}PA	"Gemini of Sagittarius"
1 rev.	^{mul_2}ALLA *ša*$_2$ ^{mul_2}PA	"Cancer of Sagittarius"

This excerpt shows how the relationship between the minor and Major signs was expressed syntactically with the determinative pronoun *ša* note that the minor sign precedes the Major sign which fits the genetival construction of this clause. Unfortunately this is the only mention of the Major and minor signs together from the micro-zodiac tablets. However, this syntactic arrangement is mirrored on the rising-time texts.

These texts evince the same construction as above but also show that the minor signs were numbered according to their place relative to their Major sign, just like TCL 6, 14 mentioned in the previous section. All four texts published by Rochberg use the same general terminology to describe the relationship of minor and Major signs. The location of minor sign was given a number not static to its order in the zodiacal twelve signs series but unique to the particular list of minor signs under a particular Major sign. For example the obverse of LBAT 1503 (BM 34664):6-7 reads:

6.	... 11-*tu*$_2$ ḪA.LA *ša* ^{mul_2}AŠ.GANA$_2$
7.	^{mul_2}MAŠ$_2$ *ša*$_2$ ^{mul_2}AŠ.GANA$_2$ ...

"The eleventh division of Pisces is (called) Capricorn of Pisces".

or LBAT 1499 14-15 reads:

14. ... 6-*tu*$_2$ ḪA.LA *ša*$_2$ ^{mul_2}LU ^{mul_2}ABSIN

15. *ša*$_2$ ^{mul_2}LU ...

"The sixth division of Aries is (called) Virgo of Aries"[348]

This text clearly shows that the minor signs were thought to belong to the Major signs through two grammatical elements. First the repetition of the Major sign establishes its place as the governing sign, secondly the construction is indicated twice through the use of the determinative pronoun *ša*. Also, that each of the series of minor signs under each Major sign were a distinct grouping with the numbering changing according to the original place of the Major sign.

Another text which uses the micro-zodiac in an astrological context is LBAT 1504, which assigns the days of eclipse possibilities found in celestial omens (14, 15, 16, 20, 21) to minor signs of Aries. Just like the rising-time texts above this text is explicit about numbering the minor signs beneath a Major sign:

LBAT 1504:

1' ⌜iti?⌝BAR U$_4$ 14 15 16 20 21 AN.GE$_6$ GAR-*un* MI [...]

2' 1-*en* ḪA.LA ^{mul_2}ḪUN *a-na* 14 *ša*$_2$ ^{iti}BAR SUM-⌜*in*⌝ [...]

3' SUM-*in* 3-*tu*$_4$ ḪA.LA ^{mul_2}MAŠ.MAŠ *a-na* 16 *ša*$_2$ ⌜iti⌝[BAR ...]

4' *a-na* 20 *ša*$_2$ ^{iti}BAR SUM-*in* 5-*tu*$_4$ ḪA.[LA ^{mul_2}A ...]

5' BE-*ma ina* ḪA.LA IGI-⌜*tu*$_4$⌝ [...]

6' 20 *ša*$_2$ [...]

"Month I, day(s) 14, 15, 16 , 20, 21 an eclipse takes place. X [...]
The 1st division of/is Aries for the 14th of Month 1, it gives. [The 2nd division of Taurus for the 15th of Month I] it gives. The 3rd division of Gemini for the 16th of Month [I, it gives.

348 The full paradigm for LBAT 1499 runs as follows: "*x* division of Major sign is minor sign of Major sign: Month *y*, KUR in month *y* morning of the 28th, star *z* produced a flare. The distance *a* (east) of star *b* culminates and the sun ditto."

The 4th division of Cancer] for the 20th of Month I, it gives. The 5th divi[sion of Leo for the 21st of Month I, it gives.]
If the end, in the division you see(?) [...]
20/the sun of [...]"

4.3 Astrological Handbooks

The compilation and combination texts that follow are closely tied to the same scribal and cultural environment that the micro-zodiac texts were written in. As was mentioned in the introduction to this chapter both types of texts take other source material and organize it in different ways, either through a process of summarization for the compilation texts, or essentialization as with the combination texts. In the section that follows I will briefly survey a few representative texts which use these techniques. All of the following texts contain material related to the micro-zodiac in some form.

4.3.1 BM 47494

The first example of a compilation text related to the micro-zodiac is BM 47494.[349] The colophon attributes it to the scribe Šema'ya[350], descendant of Eṭiru.[351] The colophon also states that it was "written and collated" according to its original. The tablet is more or less preserved in its entirety with a few damaged sections. Hunger divides the text in five sections all dealing

349 It was mentioned earlier by Rochberg (Rochberg 2003, 36–37), and published in a full edition by Hunger (Hunger 2004).

350 Schwemer has suggested convincingly that the name of this scribe should be read as Ipra'ya (Schwemer 2009, 57–58).

351 Šema'ya wrote a few commentaries which provide us a rough span of time in which he was active. One particular text BM 47447 is dated to the 19th year of Artaxerxes which necessitates a date of either 445, 389, or 339 BCE (Frahm 2011, 307). Because BM 47494 makes use of the zodiac in part of the text it should post-date the earliest of the above options, therefore Šema'ya must have been active sometime in the 4th c. BCE.

with celestial omens.[352] The first two sections associate the constellations with places or ominous events. The latter three seem to be related as they all deal with grouping the signs of the zodiac into triplicities and associating those groupings with the four lands: Akkad, Elam, Amurru, and Subartu. These sections then correlate ominous celestial events in these lands with omen apodeses.

This is a particularly interesting text when compared with the micro-zodiac material because it shares similarities in its method of association and composition. Multiple pieces of evidence suggest that this text was compiled from a number of sources. The switch between MUL and MUL_2 signs in different sections suggest borrowing from different source traditions. Similarly, the names of the constellations changes between sections. More interestingly, the first and second sections use a list of fifteen or more constellations around the ecliptic, while the later sections narrow it down the twelve constellations of the zodiac.

The fourth section of BM 47494 illustrates particularly well the gradual abstraction of divinatory thought in Late Babylonian astrology. Rather than listing individual omens in order to accurately reflect the underlying divinatory structure, this text provides the reader with a model with which to derive significance. These omens are not categorically different from earlier celestial divination, but they are presented in a way which emphasizes the underlying logic. The third section lists three stars of "the land of Akkad" and then records omens interpreting the location of planets within these three constellations. The fourth section then fin-

352 The divisions are not physically present on the tablet, but are clear enough in the text.

ishes the scheme with the other three groups of three, making a total of four groups of three stars in trine-aspect. However, the later part of the third section, where the omens are expanded does not exist for the fourth section. Presumably the scholar was able to extrapolate the omens in the third or fifth section on to the groups of stars listed in the fourth. In fact, the first two lines of the fifth section suggest that the omens were the same for each land. The first contains and omen regarding the king, although the location is not preserved. The second line applies the same omen to the three of the lands, Elam, Amurru, and Akkad, and writes KI.MIN (ditto) after each. Presumably the first line would have been in "the land of Subartu". Then we can read the entirety of the fifth section as omens relevant to each of the groups of stars.

4.3.2 BM 36303+

Another compilation text is BM 36303+ recently published by Steele.[353] Perhaps the most diverse of the texts treated here, it covers a wide range of topics relating in different ways to the zodiac. Some of the material records astral associations, relating cities to zodiac signs. Other sections layout numerical schemes like the *Dodecatemoria* and Calender Text scheme (discussed above), or list *ziqpu* stars. Finally, at the end of the text a long section preserves an otherwise unknown astrological concept in Mesopotamian astrology, known in Greek astrology as "Terms". Some of the associations between cities and signs of the zodiac are paralleled in the micro-zodiac, likewise the inclusion of the *Dodecatemoria* and Calendar Text schemes

353 Steele 2015a

suggests a relation to the micro-zodiac technique of subdividing the zodiac signs in to twelve parts.

The diversity of content on BM 36303+ is striking. Unlike BM 47494 above, this text covers a wide range of content, including substantial sections which are not omens in the traditional sense. The inclusion of numerical schemes, lists of stars, and the "Terms" suggest that the text was not only for established analogical connections between zodiac signs and traditional apodoses. This non-omen content could have served in the creation of other astrological texts or allowed the scholar to modify other omens. It is clear that the composition of this text fits into the summarizing compilation strategy outlined at the beginning of this chapter. From omens to schemes this text has excerpted sections of material from other texts and brought them together in one place without necessarily forcing them to fit under a standard unifying structure. Good evidence of this process can be found in the use of the determinatives MUL and MUL_2 just as with TCL 6, 14 above, which suggests that the excerpts themselves were coming from texts disparate enough to use different orthographic renderings of words. Furthermore, the scribe who composed this text saw no need to adapt the previous text to fit within a expected convention of writing and reproduction in the new text.

4.3.3 TCL 6, 19/20

These two texts, published by Hunger, represent an attempt to associate various types of astrological significance and organization with weather phenomena.[354] Both texts contain

354 Hunger 1976

similar information, a wide variety of omens dealing with the location and appearance of planets and its effect on the weather, specifically rain and flood. Where the two texts differs however is in the use of constellations, TCL 6, 19, and zodiac signs, TCL 6, 20. TCL 6, 19 includes constellations like the swallow, ^{mul_2}SIM.MAḪ, and the old man, ^{mul_2}ŠU.GI, alongside the traditional constellations which are equivalent with the zodiac signs. Conversely, TCL 6, 20 includes language suggesting a more abstract approach to understanding the corelations between weather phenomena and astrological portents. For instance, in a section on the reverse of the tablet the text repeats the same phrase for a number of weather phenomena, TCL 6, 20:rev. 9 "[As many] storms as there were, there will be (as many) storms now". Rather than refer to a particular time period, this statement instead makes clear that the idea was for the scribes to compute the current likelihood of weather phenomena. In fact, the text then goes on to give an intercalation scheme based on the appearance of Venus.

4.3.4 BRM IV 19/20

The two texts BRM 4, 19 and 20 are a mix of magic and astrology.[355] The colophon of BRM IV, 20 mentions that it was written by Iqīšâ who also wrote two of the Calender texts addressed later in this chapter. Both of these texts place magical spells within the micro-zodiac.[356] BRM 4, 20 does so by only naming the minor sign within which the spell is presumably most effective. BRM 4, 19 however, contains the full numerical scheme which connects with the micro-

355 They were most recently edited by Geller in his study of Melothesia (Geller 2014, 27–46). Wee has a forthcoming article where he addresses the various types of micro-zodiac and Calendar Text schemes, BRM IV 19/20 feature heavily in his discussion (Wee in press).

356 Rochberg-Halton 1988a

zodiac texts. In this case unlike the majority of texts in this chapter, the content itself is not at all connected to the micro-zodiac tablets.[357] The scheme is represented through an initial pair of numbers at the beginning of each entry, and a traditional double pairing shortly after. The first pair records the Major sign, or month, and degree or day. The second group of numbers includes the first initial pair as well as the minor sign associated with that degree or day within the Major sign or month. These are all easily confirmed using a table of the micro-zodiac scheme.[358]

BRM 4, 19 has little in common with the micro-zodiac texts save for the use of the numerical scheme as its organizing principle. BRM 4, 19 seems to have been written together with BRM 4, 20 and incorporated the micro-zodiac scheme in an abbreviated form to order the entries. The fact that BRM 4, 20 does not include the full scheme and only mentions the minor sign for each entry suggests that it must have been written after BRM 4, 19. Some form of calculation would have been necessary to compute the minor sign for each entry and these must have come from BRM 4, 19, which in turn must have come from some longer tabulation of the micro-zodiac pairs. The fact that these two texts use a stable source text and insert a new organizing feature, namely the zodiac, suggests that they functioned more as combinatory texts

357 The content of these two texts is quite interesting and there is a very strong connection between the content preserved on BRM IV, 19/20 and the much earlier text STT 300. The connection between the two texts has been known about for a while. It seems as if the BRM texts are essentially applying replacing the calendrical associations present on STT 300 with zodiacal associations (Geller 2014, 27).

358 Such as the one in Brack-Bernsen and Steele (Brack-Bernsen and Steele 2004).

rather than compilations. One intriguing section at the end of the main text suggests a process of excerpting and summarizing however.

BRM IV 20[359]:
44 GABA.RIM ŠEŠ.UNUG^{ki} *u* TIN.TIR^{ki}

"(Based on) copies from Uruk[360] and Babylon".

4.3.5 BM 56605

Finally, in this section I would like to briefly touch on a text that spans the boundary between compilation and combination, BM 56605. This text will receive further treatment in the next chapter because of its unique mix of physical layouts, but currently I am concerned with the way in which the text brings together different types of content and the general principles by which it is organized.

BM 56605 was edited by Heeßel in *Babylonisch-assyriche Diagnostik*, and has received recent attention from Wee.[361] It contains a number of different sections concerned with astrological associations. The obverse of the tablet preserves a typical linear two column text the beginning of which outlines the treatment and prognosis for a variety of illnesses. The later part of the obverse includes constellations affecting the patient. The reverse of the tablet is quite different from the obverse, so much so that the entire orientation of the tablet changes from vertical to horizontal. A large table takes up the entirety of the reverse, the rightmost

359 Geller 2014, 35

360 While the text clearly write ŠEŠ.UNUG for "Ur", Geller suggests translating it as Uruk (Geller 2014, 31, n. 54).

361 Heeßel 2000, 112–130; Wee 2015

column includes for each zodiac sign, a stone, wood and plant along with a recommendation for daily action, these references are very similar to the Material Row and Row C respectively. The rest of the table lays out the micro-zodiac series with the first row representing the Major signs and the column following the traditional micro-zodiac scheme. There is one additional row in between the Major signs and the column of minor signs. Wee has argued convincingly that this row preserves parts of the body, thus giving evidence for the Zodiac Man, the association of zodiac signs with various body-parts.[362]

BM 56605 sits on the border between compilation and combination. Parts of the text, namely the obverse, excerpt material in a linear form without restructuring or organizing the contents. However, the reverse clearly takes previous text and restructures it according to the micro-zodiac scheme, albeit there is not a lot of textual content on the reverse.

4.4 Calendar Texts

Calendar Texts come in two forms which are roughly chronologically distinct. The earliest type is preserved in two tablets from Uruk written by the scribe Iqīšâ. The format of these two texts is sparse with the contents arranged in horizontal lines without any incised borders (excerpt for those dividing the colophon from the text). The numerical scheme (discussed at the beginning of this chapter) uses a logogram to signify the month, a digit for the day, a logogram for the zodiac sign, and a digit for the degree within the sign. In both cases each entry is confined to a single horizontal line and the contents never wrap on to an extra line.

362 Wee 2015, 227–233

The other form, which seems to be a later tradition, differs in almost all aspects from the earlier texts. These tablets are strictly formatted with incised lines separating the numerical scheme from the content. The scheme itself is expressed entirely with digits, although the order is reversed, i.e. sign, degree, month, day. The contents of each entry are longer and contain information beyond just associated *materia medica*.

Both of these forms of Calendar Texts represent the combinatory texts that essentialized information by converting it into new formats using organizational schemes (in both of these cases the Calender Text scheme). Here the scribes have excerpted relevant information and inserted it into an overarching scheme.

In this section I will treat both types of Calender Texts, two of the earlier type and three of the latter type. There are other tablets of the later type that will not be treated here, but they are similar in style and content.[363] Additionally there are a number of texts which just preserve the numerical scheme, and these have been treated by Brack-Bernsen and Steele.[364]

4.4.1 SpTU III, 104/105

The two Calendar Texts written by Iqīšâ, SpTU III 104 and 105, are quite different from the later texts, as mentioned above. In addition to their format and structure being different, the contents assigned to each entry of the Calendar Text scheme bears no resemblance to the material preserved in the later Calendar Texts or its parallels in the micro-zodiac. In these texts the materials mentioned in each row are derived from the zodiacal sign with which they are

363 W 20030/127 (Mayer and van Dijk 1980 no. 79), W 20030/133, unpublished (Hunger 1974, 43)

364 BM 36995, BM 47851, BM 96258, and BM 962934 (Brack-Bernsen and Steele 2004)

associated. Steele suggests that the otherwise improbable *materia medica* included in these two texts are actually secret names for otherwise common therapeutic ingredients.[365]

4.4.2 VAT 7815/7816

VAT 7815 and 7816 were both edited initially by Weidner in the same publication where the micro-zodiac texts were treated.[366] They differ from the previous Calendar Texts in that they include more content that seems actually to parallel the material from the micro-zodiac texts to a large degree. After the two pairs of numbers in each section, the text includes content similar to the Material Row, cultic calendar material similar to Row B, and finally daily advice similar to Row C. This selection of material mirrors the micro-zodiac material, except for the omission of Row A, the omen material. Interestingly, this selection of material, omitting Row A, is exactly the same group of content found on the tablet Text 11 (K 11151+).

VAT 7816 parallels the micro-zodiac material quite closely, with some interesting deviations. The tablet concerns the first month, or the Major sign Aries. The scheme proceeds through Aries from the first to the last day, with a large broken section in the middle. The Calendar Text scheme rotates through the zodiac, and each pair is associated with a particular day, or degree within the month or Major sign respectively. The beginning of VAT 7816 is very fragmentary, but it seems to contain one-to-one correspondences between the astrological data associated with each of the Calendar Text pairs or the Major and minor sign pairs within the Calendar Text scheme. The second entry, Aries-libra, preserves within the Row B section

365 Steele 2011a, 336–338

366 Weidner 1967, 41–49

of the entry "30 *u* 20" "Sin and Šamaš" which is only found within the Libra section of Row B from the micro-zodiac. Similarly, two entries later under aries of Aries the Row B material is very similar to the Row B material from Aries in the micro-zodiac. However, at this point an interesting problem develops. Remembering that the Calendar Text scheme proceeds by 9 signs and 7 degrees for each entry, under the aries of Aries entry, the degree for the minor sign is 28. Adding 7 degrees to 28 will exceed the 30 degree limit per sign, adding an additional sign and only 5 degrees to find the next sign. Thus, the next position is 5 degrees into Aquarius 5°. However, the material from Row B for that entry is directly parallel with the Row B material from Capricorn in the micro-zodiac, one sign earlier. This pattern is found throughout the rest of the preserved obverse. The next two entries both contain Row B material from one sign previous.

Continuing onto the reverse we find the same exact pattern. The first preserved entry is for gemini of Aries in the Calendar Text scheme. The Row B material from this entry directly parallels the Row B material from the micro-zodiac Gemini. Here again the degree within Gemini is 25, within seven degrees of the end of the sign. Therefore, the next entry proceeds ten signs and two degrees ahead. This results in a position at the second degree within Aries. However, here the Row B material from this entry is parallel to the Row B material from Pisces in the micro-zodiac. As with the obverse this pattern is continued for the rest of the preserved text, the next three entries all preserve Row B material from one sign previous. It is puzzling that the error seems to be corrected initially on the reverse and then occurs again when the

degree proceeds past 30. Perhaps the two sides were written with a short break in between which allowed the scribe to find his place on each source text.

It seems as if when pulling the Row B, or cultic calendar, material from another text, the scribe did not take into account the extra sign added when the degree wrapped over 30. All of the Row B material after a degree position within seven degrees of thirty is one sign behind. Unfortunately the tablet does not preserve a second case of wrapping around, which would be necessary to check whether that would result in material from two signs previous.

It might be tempting at this point to make a general rule with this text that all of the astrological material follows this pattern, always a sign behind once the degree has wrapped over thirty once. However, the entry for capricorn of Aries on the reverse changes this interpretation. The Row C content from this row is directly parallel with the same material on Text 11 (K 11151+), except here rather than being one sign behind the current entry it is directly parallel with the same minor sign. This might cause a problem for the general idea that the scribe was unable to account for the adding the extra sign when he degree reached 30, however, it has wider, perhaps more interesting implications. The fact that these two sections of content within one entry of the Calendar Text scheme differ in how they relate to the micro-zodiac suggests that these data were coming from separate texts. The scribe was able to correctly follow the progression of the Calendar Text scheme on one of the sources, the Row C material, but unable to on the Row B source. Perhaps he missed a line in copying or forgot to compute the extra sign and was always one sign behind with just that source. If the scribe was attempt-

ing to calculate the next line of the numerical scheme and find the relevant lines on up to three other tablets, some errors would be expected in the end result.

4.4.3 LBAT 1586 + 1587

Hermann Hunger published an edition of the Calendar Text LBAT 1586 + 1587.[367] Since its initial publication other scholars have commented on it and used to explore the relationship between Calendar Texts and the micro-zodiac scheme. The text itself is badly damaged but the left edge is relatively well-preserved and contains a typical layout of numbers from the Calendar Text scheme for the third month.[368] The astrological content seems to relate to the association of constellations and cities. This is similar in content to sections of BM 47494 discussed above as well as the Material Row of the micro-zodiac texts in the previous chapter.

LBAT 1586 + 1587 differs from other Calendar Texts in that it is explicit in mentioning the position of the moon rather than only including the numerical scheme and the astrological content. On each line after each set of four numbers the moon is placed within a zodiacal sign that matches the first number on the line. The sign is often further qualified by stating where in the sign it occurs, "back", "middle", "shoulder" etc. These locations within the sign seem not to equate with a general location within the sign. For instance, in line 9 the moon stands in the "back" of Sagittarius, but the second number of the first pair is 15, directly in the middle of the sign.

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367 Hunger 1974

368 The third month is made explicit at the end of the text, where after a horizontal ruling the text reads "*šal-šu*$_2$ [*ar*$_2$]-*ḫu* ...".

Following on from this, on the next line, is the phrase "the place of the Shepherd," and as Wee has noted this would fit well with the sign Gemini since the two are equated in other texts.[369] The sign Gemini would then fit with the second pair of numbers from the beginning of the line which designates the 3rd month, or perhaps the Major sign in this case. Wee, in contrast, sees the second pair of numbers as denoting the minor-sign of the pair, while the first set denotes the Major sign. I am inclined to see the second pair as the Major sign for two reasons. First, generally the pair of numbers that progresses by the simple addition of 1 line-by-line represents the progression of time, whether months, or solar zodiacal signs (easily equated as months). Secondly the phrase "in the place of the Shepherd" throughout the text suggests that the entire text occurs in one zodiacal sign, in this case the third sign, Gemini. This is further confirmed by the end of the text where it mentions that this text concerns the third month. The usage of "(in) the place of x" is used on the micro-zodiac texts to designate the entire sign through which the sun travels in one month, i.e., the Major sign.

Interestingly, on line 9 on the reverse of LBAT 1586 + 1587 the two locations are connected with the city of Lagaš. On BM 33535, a variant micro-zodiac text mentioned in the previous chapter, the first section covers the minor sign gemini within the Major sign Sagittarius and also associates it with Lagaš. Wee sees this text as related to BM 33535.

4.5 Conclusion

369 Wee in press

In this chapter I used to different approaches to locate the micro-zodiac in the textual record. The first was a brief foray into the references to the text, the scheme, and terminology surrounding the relationship between Major and minor signs. While the evidence is not overwhelming, it is clear that signs whether in the sky or on the earth could affect each other, this was known since the Neo-Assyrian period. The Diviner's Manual presents this perspective in an unambiguous way outlining the theoretical underpinnings for an interconnected form of divination. Moving onto to the micro-zodiac specifically, TCL 6, 14, and other texts show that the schematic structure of the micro-zodiac was laid out in different textual formats. The minor signs were thought to belong to, *ša*, the Major signs, and they were numbered according to their unique order under each Major sign.

Moving on from the references to the micro-zodiac, I used Koch's investigation into late forms of astrology to develop a model for two different types of texts found in the Late Babylonian period. The first and more common are the compilation texts that excerpt information from a wide range of sources, often without dictating a unifying structure, but usually having an overarching theme in mind. Texts like TCL 6, 19 and 20 illustrate this type of composition particularly well. These types of text summarize a wide range of content by grouping together relevant sections. The second type of text, and the one to which the micro-zodiac texts belong, is the combinatory text. Here, rather than just including excerpts from different source texts, the scholar has assembled in the information under an organizing structure which enforces a certain structural reading of the text. In the case of BRM IV 19/20 it was re-reading an

early form of text into the micro-zodiac scheme. In the case of the Calendar Texts this structure was their unique numerical scheme, which itself was closely linked to the micro-zodiac scheme.

5 Tabular Formatting and the Organization of Knowledge

> The creation of various tabular formats ... might be the first fully diagrammatic human activity: one in which the spatial distribution of elements creates a structure in support of meaning production, but in which that spatial ordering has no analogical reference or prior existence. (Drucker 2014, 86)

5.1 Introduction

The micro-zodiac tablets, as we have seen, are characterized by their tabular layout which forces the diverse set of contents into a rigid and physically visible grid on the surface of the tablet. This chapter will investigate the role the table and tabular formatting plays in the reading, writing and transmission of non-mathematical scholarly texts. In the first part, I will review scholarship on traditional methods of textual transmission in Mesopotamia and then move on to tabular formatting and investigate the theoretical underpinnings of the representation of textual data in two-dimensions. Next, this chapter will briefly consider the role of the senses and literacy in the reception of tabular data. From here we will go back to Mesopotamia and briefly overview the history of tabular formatting in the scholarly traditions of ancient Iraq. This summary will serve as our context for investigating the micro-zodiac tables and other examples of textual representation.

Tables exist from the Ur III period (21st century BCE) onwards in the history of Mesopotamian writing but become signficantly more complex in format and content in the first millennium BCE when scribes begin to use tabular formatting to structure non-mathematical data. Modern scholarship has mostly focused on the content of the tables rather than

their physical format. When ancient texts are presented in modern scholarship they often lose elements of their original form. This is usually done for legitimate reasons: facilitating understanding, physical limitations of the printed page etc. However, texts excised from their physical layout necessarily lack the original structure in which the ancient author placed the words and signs of the composition. While the text may exist in an ephemeral form to be analyzed for its content, studying the original structure of a text as it exists on the extent manuscripts is essential to its understanding and can explain the intentional placement of the content onto the medium on which it was preserved. This is especially true when the format of a text is more complicated than a list of sequential paragraphs. Assyriological scholarship has for the most part dealt with texts in a prose or linear format, primarily because the vast majority of literary and scholarly material in Mesopotamia was recorded in prose format. An adequate study of the micro-zodiac texts requires representing them in their original format.[370]

The micro-zodiac series contains a sequence of tables that can be thought of as encompassing one larger table covering the entire zodiac. Each table collects material ingredients, significant omens, cultic information, and finally daily actions which were all related schematically to locations within the zodiac. The tabular format of this series of texts is fundamental to its structure as an astrological compendium. In addition, the choice of location for certain

370 Crucially this is not always a tabular format. Ancillary texts to the micro-zodiac, like BM 33535 and BM 36746, show that the tabular format of the micro-zodiac was not set in stone and that content could shift between formats. The Calender Text tablets share a great deal of content with the micro-zodiac and use another type of format, albeit one that is tabular in its underlying structure. The combination of these different formats preserving similar, if not in some cases the same, content makes the case for representing each of these diverse texts in their original layout.

pieces of content in the table underlies important structures of knowledge sometimes lost in other formats of text. These structures of knowledge can sometimes be explicit, in that we can understand clearly the reasoning behind the location of particular piece of data.[371] In other cases it can be opaque, where the choice might be non-obvious, connecting pieces of data by qualities that are not visibly present in the text, for instance a connection found in another text.[372] Tabular formatting allows for relational links between cells across the text, creating a richer and more productive landscape of association. This landscape is "generative", in that the acts of writing and reading create new knowledge or associations derived from the organization of the text and combination of previously disparate data. Drucker has argued that texts as "knowledge generators" produce knowledge through the explicit spatial relationships exhibited on their surface.[373] The production functions through the combination and association of elements within the structure and order of the text. Perhaps one of the clearest examples of the generative process is the circular nature of the zodiac and micro-zodiac scheme. While the traditional micro-zodiac tables present the data in a seemingly linear fashion, when the Major signs are arranged together, for instances as they are on Text 11 (K 11151+) the repetitive nature of the scheme is revealed. In both of these cases, the micro-zodaic and the astrolabe, it is clear that the underlying scheme is conceived of separately from the format of the text.

371 This is often clearest on administrative texts with simple mathematical formulae governing the relationships between cells and the rows and columns which organize them.

372 This is a case where tables can sometimes clue us in to these unknown qualities, in the absence of the source text. By working through the relational structures of seemingly unrelated pieces of data, new relationships and properties might present themselves.

373 Drucker 2014, 105

Because this "generative" process is best evidenced by the act of reading the text, the process is precisely something that modern scholars can analyze and study in these texts. The act of reading tables is also closely tied to an understanding of the senses involved in the reception of textual representation. As I will discuss later, the traditional model of literacy means that texts were often heard either by the author reading aloud to themselves or as a member of an audience. However, tables introduce a visible but non-linguistic syntax that cannot be understood aurally. This inclusion of non-linguistic syntax in the form of graphical elements on the text's surface fundamentally changes the reading event into one that involves a substantial amount of visual processing rather than only oral/aural transmission.

5.2 Traditional Textual Transmission

The organization of knowledge is fundamental to its communication, whether written or oral, and the transmission of knowledge necessitated reinterpreted or copying onto a new medium, often but not always, following the conventions of the source material. The traditional method for textual transmission in Mesopotamia was on clay tablets written in a linear format that were then copied by another scribe. Generally, the scribes tried to maintain a strict adherence to the original source material. Colophons frequently state that a text as "written and checked according to its original".[374] Scribes copied content, format, and even in some cases physical characteristics like damaged sections of the source text on to the new

374 This element of the colophon is frequently attested on texts from Babylon and Uruk during the Seleucid period (Hunger 1968). Unfortunately, only two colophons are preserved in the micro-zodiac corpus, Text 2 (VAT 7851) and Text 7 (VAT 7847+). They both include typical *Geheimwissen* formula, a short section of text which prescribed protections for the text or curses against an unauthorized reader, for recent studies see Lenzi and Stevens (Lenzi 2008, 186–204; Stevens 2013).

tablet. Texts were composed of vertically layered sequences of paragraphs, which were either divided by horizontal lines to mark differences in content or left as a continuous piece of text. Vertical incised lines could divide the tablet into columns, but this practice was used to demarcate space and did not affect the understanding of the content. We know however from various records of scribal practice that texts were excerpted for specific purposes[375], and knowledge could be transmitted orally, either directly person-to-person, written down later, or taken as a form of dictation.[376]

Knowledge could also be transferred as a form of memory independent from an explicit textual record. John Steele has also proposed a form of "remembered knowledge" that was not a method of exact replication but rather a shared memory of, in the case he is discussing, the *ziqpu*-stars, which were then written down from memory in different arrangements.[377] However, throughout most of the history of cuneiform scholarship the linear prose format, and its method of transmission, dominated the scholarly material. In particular, large collections of omens, including celestial omens, were recorded entry by entry, paragraph after paragraph.

375 This tradition is common in the medical and astrological corpus. Often medical recipes or treatments were excerpted from a larger source text for use in the treatment of a particular patients, these excerpts could then be secondarily re-collected back on tablets containing multiple recipes (Geller 2010, 102). Another example of this practice from the astrological corpus is the numerous reports to the Assyrian kings from their scholars, where the writers had excerpted pertinent astrological omens and appended their own explanations of the contents for the king (Hunger 1992).

376 Worthington has a comprehensive treatment of the evidence for and against dictation in a variety of scribal contexts using a range of terminology. He concludes that dictation was likely in certain circumstances, when there are many copies of a stable text, and possible in other cases (Worthington 2012, 7–13).

377 Steele 2014

The organizational structure of these long divinatory texts divides the composition into small sections along general thematic lines. Two good examples of this practice are the omen series *Šumma Ālu* and *Enūma Anu Enlil*. Both of these texts are long lists of omens stretching across multiple tablets; the former deals with terrestrial omens and the later deals with astrological material. Sally Freedman in her introduction to her edition of the beginning of *Šumma Ālu* lays out the general thematic order of the known exemplars:

> Of the tablets of Šumma Alu that are currently preserved, the following generalities can be made. Tablets 1 and 2 of the series were devoted to an examination of the ominous aspects of cities. Tablets 3 through 18 seem to have dealt with various aspects of houses. Tablets 19 through 21 indicate the ominous significance of the appearance of demons and supernatural entities. Tablets 22 through 49 deal with appearances and actions of animals: snakes, scorpions, lizards (Tablets 22 through 31), small rodents and insects (Tablets 32 through 36), and larger animals including cattle, horses, wild beasts, dogs, cats and pigs (Tablets 37 through 49).[378]

However, this outline of the general thematic structure of the text is problematic. The author rightly notes that the variant textual traditions organize the material in different ways. Additionally, the tablets were often excerpted and redacted from other material resulting in a lack of a complete textual picture on which to base an organizational scheme. Two catalogs of the ancient text are preserved which list the incipits of the tablets in order.[379] However, these catalogs do not necessarily agree with each other or with the tablets containing the omens

378 Freedman 1998, 2

379 Freedman 1998, 321–327

themselves. This discrepancy between catalogs, tablets, and variant traditions represents the difficulty in assigning a strict organizational structure to a linear prose text.[380]

A similar text, with perhaps more in common with the micro-zodiac material, is the celestial omen series *Enūma Anu Enlil* (EAE). As with the terrestrial omen text discussed above, this collection of omens also seems to exhibit structural expansion in multiple forms. It seems the issue in the case of EAE is more one of different numbering systems.[381] The text can be generally divided into four sections governing lunar omens, solar omens, weather omens, and finally omens concerning stars and planets. Just as before, catalogs exist, but they do not always match the ordering and content of the tablets. That being said, our understanding of the role of catalogs and *aḫû* material in the divinatory corpus is still hampered by an assumption that the main series, *iškaru*, was given preference in the stream of tradition. Rochberg has shown that Neo-Assyrian scholars quoted widely from both the main series as well as the *aḫû* texts.[382] The result was that to represent the knowledge within a particular field of divinatory science a scholar had to understand all of the relevant tablets from the main series as well as the *extraneous* omens, both of which overlapped and presented their data in a linear format.

The micro-zodiac texts represent a sharp departure from this format and introduce a new layout for representing literary knowledge. Here, knowledge is organized along two axes and a strict organizational structure guides the location of all data within the text. Data are

380 Freedman 1998, 17

381 Fincke 2001

382 Rochberg-Halton 1987b, 336–337

essentialized[383] from their source text(s) and assigned to their specific place within the series, and the repetition of certain cells at regular intervals is part of the paradigmatic structure of the text. The columns are ordered according to a scheme developed through the manipulation of an existing astrological paradigm. Thus, copying into this new format required substantial planning and forethought during composition.

One final important consideration is the way in which long-standing traditions and literary texts are transmitted and preserved over the centuries and what processes affect the stability of the text, especially those that are external to the work of scribes. It has long been acknowledged that any form of organized knowledge is subject to gradual entropy.[384] Over time written knowledge loses its integrity through two processes: textual omission and structural expansion.

The first, perhaps the most recognizable, is omission either through outright destruction or gradual loss of coherence. In many exemplars of texts from Mesopotamia, damaged sec-

383 I use *essentialize* here to represent the method by which small excerpts from traditional forms of knowledge were taken out of the literary context and inserted into the micro-zodiac according to the paradigmatic structure. The micro-zodiac texts notably rarely offer direct quotations from related texts, instead the content included within the cells is, in a sense, paraphrased from other material.

384 The concept of entropy in ancient knowledge has a complicated route of transmission through modern scholarship (befitting the topic). While scholars have always acknowledged the slow degradation of a textual tradition, brought on by each near-perfect copying event, it was not until modern scholars of information theory began theorizing on the transmission of digital signals that the formal concept of entropy entered philological scholarship. The defining work on the entropy of digital signals was done by C. E. Shannon in 1948, which has since been updated and reprinted numerous times (Shannon 2001). For Shannon, entropy itself was a form of knowledge, in that the entropy exhibited by a signal or message which was no longer uniform could be interpreted as information (albeit not necessarily useful information). For the application of entropy to a classical text see: (Cisne, Ziomkowski, and Schwager 2010). Interestingly, medieval European scribes were well aware of the degradation of texts and created their own demon, *Tutivillus*, who was responsible for errors and kept textual omissions in a sack on his back (Jennings 1977).

tions on previous manuscripts are marked with annotations, *ḫīpi* "break" or *hīpi ešši* "new break", which explain the absence or incompleteness of the material, representing damage to the primary source. In other cases, the tablet series were copied but the scribe omitted sections when originals could not be found.

The second process is through structural expansion. The texts copied and excerpted by different scribes in different cities resulted in different versions, creating a large number of sources that scribes had to deal with when trying to collect ancient texts.[385] One example of this process is the presence of *aḫû* tablets connected with their associated omen series, *iškaru*. Rochberg notes that the process of becoming standardized (or "relatively standardized") was a product of the inherent power behind the text.[386] As texts and their associated text objects gained prominence both within the field of scholarship and in the court, there was an effort to standardize the extant literature.

These two processes in the end function to make the textual tradition less fixed to our modern scholarly eyes. In our contemporary search for academic truth we put precedence on reconstructing as near to a "complete" or "perfect" structure of a text as possible. However, to ancient scribes the experience might have been remarkably different. In any case, tabular formatting, particularly in the case of literary material, could potentially serve to slow or halt the process of textual degradation.

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385 The scribe Esagil-kīn-apli famously described his work collecting the various texts of the Diagnostic Handbook as joining "twisted threads that had no duplicates." (Finkel 1988, 148–149).

386 Rochberg in press, 225

5.3 Towards a Theory of Tabular Formatting

Tables organize knowledge in very specific ways. The rigid format serves to bound the knowledge within conceptual limits and structure the knowledge according to an overarching system. Tables are made to contain knowledge and are not easily extended or modified when the contained knowledge no longer fits the original purpose of the table. Therefore, tables require a certain amount of forethought about the potential content to be kept within their bounds. If an organizational scheme is used tables also allow for easier access of data, as each discreet piece of data lies on two vertices with their own order. Knowing the organizational structure of a table, the internal characteristics of both the columns and rows essentially provide shortcuts to reach a point in the text with which the reader might be directly concerned.[387] This is in sharp contrast to a literary text, organized in a prose layout, where, in order to find a relevant passage the reader might have to skim the entire text starting from the beginning.[388] Additionally, tables on physical media present real dimensions that restrict the total amount of text within a single cell. While our modern digital spreadsheets might expand

387 Alexander Jones in his comprehensive treatment of the astronomical fragments from Oxyrhynchus concluded that there were a number of well-defined formats for the astronomical tables (Jones 1999). The standardization of tabular formats takes this ease of use one step further in that similar knowledge can be contained on similar, or the same, types of tables making locating data even easier. A good example would be monthly tabulations of the appearances of a certain celestial phenomena. While the data might differ month by month, the general parameters are the same. The idea of ease-of-use also applies to ephemerides from Babylon where the final digits in the entries of a column might give an immediate clue as to the nature of the data, e.g., full or new moon (this phenomenon is discussed later in this chapter).

388 Often texts are organized into broad sections that might be bound to a tablet or smaller group of tablets. This structure potentially allows for locating data in a smaller subset of the entire text, but still requires the reader to read the text in a linear fashion. This is generally the case with the divinatory texts explored previously.

in limitless dimensions to accommodate our data, the physical table is designed to fit a predetermined size, and any entry must be concatenated in order to fit within its bounds.[389]

Tables, because of their graphical non-linguistic form of organization require a certain degree of terminology in the discussion of their details. A number of scholars have proposed sets of language to use around tables. The editors of *The History of Mathematical Tables*, Campbell-Kelly, Croarken, Flood and Robson, put forward a classification of tables as either a form of "calculation aid" or "data-presentation", and note that their contents might derive from empirical or theoretical datasets.[390] The micro-zodiac is therefore an example of a form of "data-presentation" where the data derives from theoretical datasets which are not based on a relationship grounded in mathematical formulae. The process of essentializing source texts whether traditional scholarly series or short lists such as the Stone and Plant lists published by Finkel,[391] was one of excerpting relevant content out of its immediate context. Materials, omen apodoses, and short pieces of advice were taken out of their source text and inserted into the micro-zodiac, without including the rest of the text or the entirety of the analogical reasoning behind the ordering of contents in the source text.

389 One contrary example from the micro-zodiac is Text 4 (W 22554, 7a). The scribe frequently ran over the incised column lines. When the content from one cell ran into the next and might have confused the reading of a particular line, the scribe used a double wedge (Glossenkeil) as a colon to mark an artificial boundary between two sections of text.

390 Campbell-Kelly et al. 2003, 4–5

391 Finkel 2000

Eleanor Robson has defined a number of terms which will be useful here.[392] She uses *formal* and *informal* to differentiate between tables that have distinct visual delimiters, such as incised lines, and those that lack any markings. In terms of features around the table, *headed* tables contain a header above the columns informing the reader of the content within a specific column. Tables might also include a *title* or *preamble* above the actual tabular layout. Similarly at the end of the table the scribe might have included a *summary* or, like many other tablets, a *colophon*. This set of terminology is useful in talking about tables in an abstract sense, allowing the format itself to be the object of inquiry.

Tables allow for hidden commonalities between disparate pieces of data to be displayed through a physical relationship or to be implied by their relative closeness or orientation in the tabular matrix. However, this process can also occur after the composition of the text during the act of reading the contents. As noted earlier, Drucker suggests that the process of reading through a tabular format can create knowledge.[393] Tables through their very format are knowledge generators. The repetition of contents on the horizontal plain makes an association between minor signs that is otherwise not present in the text.[394] Similarly the inverse relationships found at different points, for instance Aries-Cancer and Cancer-Aries create a link between two cells otherwise unconnected. While neither of these two examples is described

392 Robson 2003, 20

393 Drucker 2014, 88

394 For instance in Text 7 (VAT 7847+) the repetition of Karkara (IM^{ki}) in the Material Rows for the minor signs Pisces, Aries, and Taurus must indicate some shared system of analogical reasoning among these three signs at this point in the micro-zodiac.

in the text, the format of the text allows it to be read in such away that the connections are present in the tabular structure of the text. New knowledge is created when read within a schematic structure. This is especially true when tables are used to represent genres of knowledge that gain benefit from an increase in connections between discrete pieces of data, such as astrology. Astrological prediction, and all divination for that matter, functions through constructed relationships between events (real or imagined) and effects (past, present, or future). The denser the syntactic structure of a text the greater the options for creating meaningful relationships.

5.4 The Role of the Senses

The investigation of tabular formatting goes beyond just the production of their structure and must also include the process of reading the table and what the reception of the text requires of the audience. Here, I would like to briefly consider the senses involved in accessing data from a table. In the manuscript culture in western Europe the act of seeing was often thought of a potentially deceiving and only through hearing a text could one be sure of its contents.[395] Ong makes a case for the preference of an oral or aural route of the transmission of knowledge over a purely visual one. The preference of orality over silent reading can even be found in the erratic format of early printed works, where the choice of word breaks and other formatting characteristics do not facilitate silent reading.[396] The in-accessibility of the written word in Ong's examples of manuscripts and printed books, is in contrast to the physi-

395 Ong 1982, 119

396 Ong 1982, 120

cal structure of tabular formats. Tables force the reader to consider the text not as marking an otherwise memorized piece of prose, but rather made up of distinct units of text assembled on the page (or tablet).

We often think of ancient texts as read aloud, with an audience of one or more people.[397] The table interrupts this dynamic by forcing the reader to consider graphical forms of syntax that cannot be pronounced either to one's self or others. The table is an object that must be read alone and cannot be vocalized. The reading of tables then becomes more of a personal act whereby some element of meaning is visually understood rather than heard. The column and row markers of the *formal* table can only be seen and not pronounced, necessitating an act of comprehension solely in the (silent) mind of the reader. That being said, a table can be consulted and sections read out loud to a receptive audience. In order to do that, however, the reader, or performer must comprehend the organizational structure of the tabular format and find the content under consideration, in a sense "reading" the table before "reading" the content.

5.5 Tables in Mesopotamian Scholarship

Tabular formatting begins early in the history of cuneiform writing.[398] The earliest tables are concerned with mathematical administrative material containing numerical data denot-

397 Charpin collects the evidence for reading silently and out loud (Charpin 2010, 41–42). It seems that most texts were read out loud either to oneself or in many cases to an audience, i.e. the recipient of a letter. In a few cases, scribes make mention of reading a text silently, but it may not have been a common practice, or perhaps more likely, it was not something referred to often in the textual record.

398 Robson 2004, 117

ing counts, totals, and sums. However, these tables never fully replace traditional prose-like texts throughout the entirety of cuneiform history. Robson notes that during the Old-Babylonian period, "the heyday of Mesopotamian tables", tables only represent one to two percent of administrative documents.[399] From the earliest administrative tables to the end of cuneiform writing, mathematical tables exist side-by-side with linear texts recording similar information. In contrast, it is not until the beginning of the first millennium that the tabular layout is applied to literary texts or texts containing non-mathematical scholarly information. These tables rather than sum or calculate mathematical information, instead excerpt and essentialize scholarly genres into tabular layouts.

The long history of tabular formatting in Mesopotamia is dominated by mathematical accounting texts and in the later periods, astronomical calculations and results. The introduction of tables with literary content is relatively late and must be differentiated in a few important ways. The first difference is the character of the content within the cells of the table. The mathematical and administrative tables are made up of almost entirely numbers, the only exception are labels that often contain descriptive information about the row or column in question. The content of each cell is rather short, often just a single number or word. Any explanatory material, if present at all, is often relegated to the title, summary, or written on the left edge. A further difference lies in the composition of mathematical tables. In the creation of an administrative table data are added to some cells and then modified by internally defined

399 Robson 2003, 41

formulae to result in other cells; the process is "active". In this sense mathematical (specifically administrative) tables are a means to end, i.e. the sum. They are a record of the mathematical work that went into creating the end result, in a sense, a method to check the product. The relationships between cells are either explicit in the table or relatively easy to work out through the obvious links between rows or columns, for example a final row or column summing earlier entries. The tabular layouts exhibited by scholarly material certainly have a relational structure between cells but often it is opaque and difficult to access, and they lack the concept of a final tally or sum. The scholarly tables are the end themselves, and the means are often hidden behind esoteric logic. The table functioning as a means of knowledge creation gets back to the idea put forward by Drucker of the structure of a table being "generative" in that the very act of reading the table creates knowledge, rather than using the table to present pre-computed knowledge.

Robson, in her work on mathematical tables, concludes that the choice of tabular formatting is a decision that comes to an individual scribe or bureaucratic office, and that the tabular format itself is not something that replaces a previous form of data storage.[400] This conclusion challenges the idea that tabular formatting is a more ideal system and must therefore replace earlier forms of data storage. In fact it seems as if in the Old-Babylonian period tables go in and out of use, with standard lists remaining a constant format. A similar situation can be observed with the long-term usage of the simple clay token as an administrative

400 Robson 2004, 140

aid well into the first millennium.[401] These tokens were used in conjunction with written documents long after the development of accounting tablets written in a tabular format. A development of one technology does not necessarily make a previous technology obsolete.

Looking at the tables in late scholarly material from Seleucid Babylonia we see a similar situation. The micro-zodiac tablet edited here as Text 4 (W 22554/7a) was found with copies of the hemerological series *iqqur īpuš* and a commentary on *Enūma Anu Enlil*.[402] Text 4 contains hemerological excerpts, with both cultic and personal concerns in Rows B and C respectively, and would have, if it were complete, included Row A that borrows heavily from EAE. While Text 4 does not directly excerpt these related texts, it suggests that different forms of hemerological advice, and celestial divinatory texts could exist together. In a sense, the compilation of these genres, attested in contextually related tablets, into the micro-zodiac tables does not preclude the existence of the related tablets themselves. The micro-zodiac tables did not make hemerological and celestial divinatory texts obsolete.

An illustrative example of the overlap of micro-zodiac material is the tablet BM 36746 edited by Rochberg.[403] This tablet partially preserves eight lunar eclipse omens (of an original twelve) ordered by the signs of the zodiac. The attested material is directly paralleled by the beginnings of the micro-zodiac tables, in the Initial Omen sections. While there are small differences between the excerpts on BM 36746 and the initial omens on each of the micro-zodiac

401 MacGinnis et al. 2014

402 See texts 162 – 166 in SpTU 4.

403 Rochberg-Halton 1984

tables (where preserved) it is clear that the texts are very closely related. It is also clear that elements of the omen material on both texts clearly adapt parts of the EAE tradition, but are markedly different in other ways. The sections on BM 36746 and the Initial Omens of the micro-zodiac texts include not only the location of the moon but also other planets visible at the time, the locations of which are given within the zodiac. Both the inclusion of multiple celestial bodies and zodiacal locations are fundamentally different from the EAE tradition.[404]

The textual history behind the collection of twelve omens on BM 36746 and their relationship to the Initial omen sections of the micro-zodiac texts are unclear. Either BM 36746 was composed independently from the micro-zodiac series, written as a novel composition or collected together on the tablet from other sources. Or perhaps they were composed initially for the micro-zodiac texts and BM 36746 represents a collection of these initial omens excerpted from the micro-zodiac texts. The two colophons from the micro-zodiac texts allow us to securely date the copying of micro-zodiac material to end of the early 3rd c. BCE, and Rochberg notes that the while the paleography does not provide a firm differentiation between the Achaemenid and Seleucid periods, the inclusion of the zodiac gives us a *terminus post quem* of the end of the 4th c. BCE.[405] In any case, BM 36746 and the micro-zodiac texts are clearly very similar in content and likely date to a very similar time period as well.

Another important form of textual representation closely related to the table is the lexical list. Robson includes lexical lists in her categorization of tables; she terms lexical lists "tab-

404 Rochberg-Halton 1984, 118–121

405 Rochberg-Halton 1984, 118

ular lists".[406] Lexical lists are a form of one-dimensional table where the primary axis is vertical. The inclusion of two or more columns suggests a method of access oriented horizontally as well, but unlike in mathematical texts, tabulation on the horizontal axis is fixed and not dynamic. The primary location for accessing the content of a lexical list is through the left most entry in the table and not through the columns to the right of the initial entry. In fact, the organizational structure is based on the leftmost column, rows are ordered according to their contents in the left column. However, the general theory of organizing knowledge in a schematic format with prominent delimiters is still present. Lexical lists or the "tabular list" layout is one of the few tabular formats that exist for most of cuneiform history. Within these "tabular lists" an organizational structure might be used to order the entries. "Tabular lists" make up the most common format for tablets within the commentary tradition.[407] Frahm in his discussion of the format notes that the occasional entries spanning the columns suggest that the scribes formed the layout of the text first and then filled in the structure with the source text and commentary later. While the paradigmatic structure of a two columned commentary tablet is rather simple, the forethought to separate out different groups of knowledge and to order them in horizontal and vertical space indicated a deeper engagement with planning the text prior to writing. This is especially true when you consider repetition of MIN or KI.MIN "ditto" phrases suggesting that some element of grouping happened prior to setting down the text within the tabular structure.

406 Robson 2004, 116

407 Frahm 2011, 34–35

The lexical texts and their use of visual syntax afford us a brief foray into the use of paradigm and syntagm within divination.[408] The traditional method of divinatory representation involves a syntagmatic relationship between the protasis and apodosis and the terms embedded within them. This is in a sense the understanding of an omen, and runs horizontally on traditional omen texts. In contrast, the paradigmatic relationship *between* omens runs vertically swapping out elements of the protasis and apodosis when the divinatory logic requires. Interestingly, these two axes of syntagm (horizontal) and paradigm (vertical) are switched in the micro-zodiac series, such that the meaning of a particular omen is read vertically from the Major and minor sign down to the row with which the reader is concerned. The paradigmatic relationship between columns is modified horizontally, swapping out minor signs and cell contents as necessary.

Finally, I would like to briefly survey two types of tables connected with scholarly material. The first, the tables of *iqqur īpuš* and other hemerologies, appear before the micro-zodiac texts, and the second, astronomical tables of lunar eclipses and other planetary data that are roughly contemporaneous with the micro-zodiac texts. Both tables are *formal* tables, in that the delimiting lines are usually visual and obvious. However, only the hemerological tables are *headed*. The lunar and solar eclipse tables and planetary tables separate the entries without an initial row explaining each columns contents. In the case of the hemerological tables the heading is the months of the year.

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408 The use of these terms comes out of the structuralist linguistics created by Ferdinand Saussure (de Saussure 1959).

The hemerological tradition is particularly interesting because of the sheer quantity of source material and the relationships between different compositions. Of particular importance for this chapter are the tables that excerpt and essentialize the contents of two different compositions, *iqqur īpuš* and the Babylonian Almanac. These tables sought to compress and make more accessible already relatively schematic texts. They did so by essentializing not only the content of certain lines but by omitting lines that were not considered relevant for the presentation of data. The final table, in the case of the tables of lucky days from the Babylonian Almanac could then be added to other texts as a schematic representation of the knowledge contained in the Almanac.[409]

409 A nice example of this is found on BRM 4 24 (MLC 2627), where a small version of the table of lucky days appears on the reverse of a tablet that contains large sections of *iqqur īpuš*. While the data on the small table do not come out of *iqqur īpuš,* its aims are certainly complementary thus meriting its inclusion on the larger tablet. [See Figure 2]

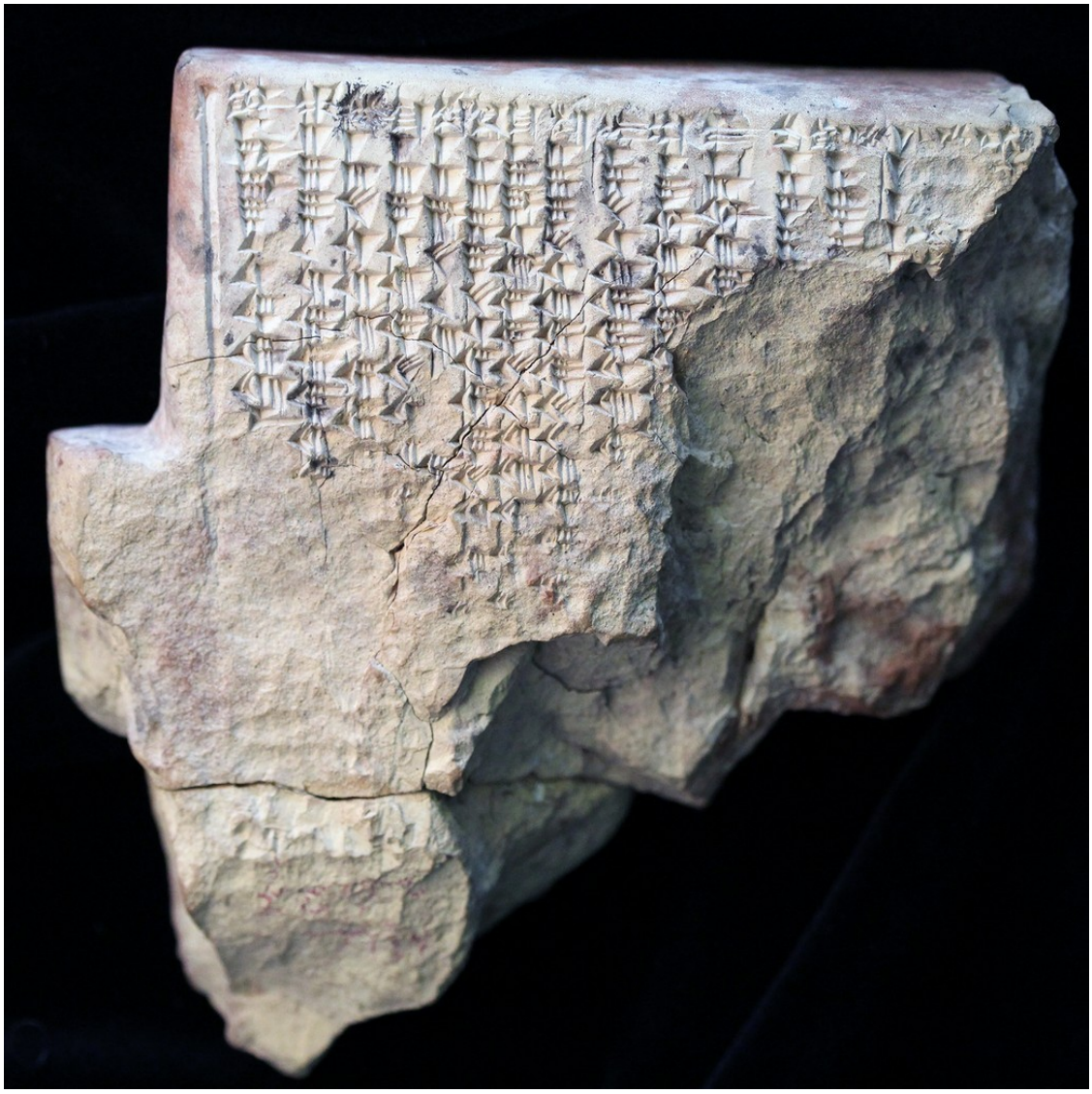

Figure 2: MLC 2627 reverse, table of lucky days (*image taken from http://ccp.yale.edu/P297024*)

The tabular versions of *iqqur īpuš* are the more complex of the two types of tabular hemerological texts.[410] These table are *formal* and *headed*. The first cell on the left most col-

410 I know of nine manuscripts. These were first noted by Ernst Weidner, who assigned the tables to group C of his division of the *Hauskalender* texts (Weidner 1957). He included only one manuscript VAT 10375. However, in an early article in ZA Sayce published one manuscript, K. 98 (Sayce 1887, 333–334). This tablet has recently been joined with MS 2226 from the Schøyen collection. Labat published five more in MIO 5, VAT 10480, VAT 10912, VAT 12944, VAT 16463b and VAT 13799+ (Labat 1957, 315–320). One more was found in

umn gives the overall scheme for the table: TA UD 1-KAM$_2$ EN UD 30-KAM$_2$ "from the 1st day to the 30th day". Each following column is then headed by a single month in order. The left most column contains small excerpts from *iqqur īpuš* which are often abbreviated forms of particular omens. Row by row these apodoses from *iqqur īpuš* are listed and then to the right the months in which this action are favorable are marked in the subsequent columns by the inclusion of the month name from the column in the cell of the row. The last column of the text contains the sign ŠE for each row, marking each included month in the row as "favorable". A relatively complete version of this table can be seen on VAT 13799+.[411] A substantial amount of work went into excerpting and compressing the information from *iqqur īpuš* to fit within this tabular layout.

The other common form of hemerological table are the compilations of lucky days taken from the lists of lucky days.[412] The lists themselves were abbreviated forms of the Babylonian Almanac which only include the days which were favorable in the Almanac. While many of the list texts consist of sequential ordering of favorable days within the months, two tablets present the months in columns side-by-side in some ways anticipating the tabular abbreviated form found later.[413] The tables of lucky days compress the lists further by eschewing the linear

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the course of excavations at Sultan Tepe, STT 304 (Gurney and Hulin 1964). Finally, another was found at Nimrud in the temple of Nabû, CTN IV 53 (Wiseman and Black 1996).

411 Labat 1957, 317

412 The lists of lucky days was most recently edited by Livingstone in his treatment of the hemerological texts (Livingstone 2013, 83–99).

413 IM 63388 in (Matoush 1961) and IM 50969 in (Labat 1952). Both of these early versions of the tables of lucky days are very similar in the layout. They consist of six columns on each side and each column concerns one

format and just listing the months on one axis and the noting the dates which are favorable on the other axis. These tables can either be found as small tablets with only the table, or the table could be included on a larger text, which itself often includes other hemerological information. A good example of the later practice is BRM IV 24.[414] The larger tablet includes sections of *iqqur īpuš*, on the reverse a small table of lucky days is preserved. This text is particularly interesting because the table of lucky days is not necessarily derived from *iqqur īpuš,* however, the aims of the two texts are very similar, thus meriting their inclusion on the same tablet.

The astronomical tables of the Late Babylonian period offer a rich corpus to investigate tabular formatting in a well-preserved and diverse set of texts. In particular, a group of lunar eclipse records organized around the Saros cycle offers a few interesting characteristics of tabular formatting relevant to the current discussion. These texts can be divided into two groups.

The first is a large multi-tablet table of eclipse records spanning 24 Saros cycles,[415] (747 – 315 BCE).[416] The fragmentary tablets preserve a tabular layout where each cell records a pre-

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month, this a total of twelve columns on the obverse and reverse. IM 50964 lists all thirty days from top to bottom such that the same day in different months are essentially on the same row, although there are no incised row lines. IM 63388 is slightly different in that it only lists the good days, and then at the bottom of each column summarizes in a small section which is written perpendicular to the flow of the column.

414 BM 50634 is another example, however only the table of lucky days on the tablet is edited in Livingstone's volume.

415 A Saros cycle is the roughly eighteen year, 223 synodic month, period after which eclipses repeat.

416 These texts are edited by Hunger in the fifth volume of the diaries as texts 2, 3, and 4 (Hunger 2001). They were commented on in the same volume by Steele (Steele 2001). They had received an earlier treatment by Walker in a short article on chronology (Walker 1997). And see all the further discussion by Steele (Steele 2011b).

dicted or observed eclipse. The two types of entries can be easily distinguished by the brevity of the report in the case of predicted eclipses.[417] Each column contains eclipse reports for an entire Saros cycle, probably stretching over multiple tablets. The cells of these columns are divided by six or five month intervals. Therefore, cells that are on the same row but a column apart differ by one Saros. The orientation of the text is such that they rotate on the vertical axis, unlike the majority of cuneiform tablets. This was done to preserve the horizontal row throughout the text so that a particular Saros interval could be traced horizontally across the columns. The tables were clearly composed from other sources, and the quality of the entries differs throughout the long span of eclipse reports.[418]

The second group of lunar eclipse records are closely related to the previous group above. These "Saros Canon" texts contain dates of lunar eclipse possibilities organized in a tabular layout.[419] The entires lack the descriptive elements of the eclipse reports mentioned above and only contain the month and year of the eclipse. They follow a similar scheme to the previous texts in that entries in neighboring columns are one Saros cycle apart, and cells are divided by five or six months.

The two groups of text discussed above share a similar organizational scheme, in that the rows corresponds to an eclipse possibility within the Saros cycle, and the columns are dated one Saros apart. This allows for comparisons to be made between eclipses that should share

417 Steele 2011b, 457

418 Steele 2011b, 456

419 Aaboe et al. 1991

similar characteristics. The data were taken from other records of eclipse possibilities and reformatted in the tabular layout. This new format allowed for improved access to the eclipse data, which were cyclical in nature and benefitted from the two-dimensional layout.

Another group of astronomical tables of the Late Babylonian period are the group of tablets called, in modern scholarship, "Auxillary Tables". Neugebauer divides these tables for lunar motion into six groups.[420] Each group is concerned with a different part of the overall calculations for lunar motion, and the tables preserved for each group show a different configuration of columns. Lacking headings, these texts would have be differentiated based on the content alone. However, the regularity of the numbers in certain columns[421] and inclusion of certain columns, such as the date, in expected places allowed knowledgable scribes to identify tables quickly and accurately.

5.6 The Tables of the Micro-zodiac Texts

The micro-zodiac tablets are governed by an overarching organizational scheme that structures the order of the tablets and columns of the series (See Table 1 in Chapter 3). Returning to Robson's terminology, we might then define the micro-zodiac series as consisting of *formal* tables. Each table in the series has both its columns and rows marked with distinct vis-

420 Neugebauer 1955, 164–176

421 The numbers preserved on these texts go far beyond the scope of this chapter, or the larger dissertation. However, a brief comment will suffice. There are many methods by which the numbers in the columns are calculated, and two of these are step functions and zig-zag functions, both of which have characteristic patterns to their results, especially at the end of each number. Even by only looking at the end of each number a scribe would be able to roughly tell these two calculation methods apart. It then follows that these two methods were used in certain places for certain columns, thus allowing the identity of a column to be further narrowed down.

ual incised lines. In some examples these lines are faint and nearly non-existent. This effect can be attributed to the order of incising lines and writing text, the former preceding the latter. The signs put down after the incised lines have smudged or blurred the previously clear incised lines. A good example of this process is BM 41583 where Row A on the tablet has a very faint vertical incised line separating the two cells extent on the tablet [see Figure 3]. In a few places the line is visible where the text from the Row A cell is naturally indented meaning that the initial sign was written further away from the border and thus would not have interfered with the previously incised line.

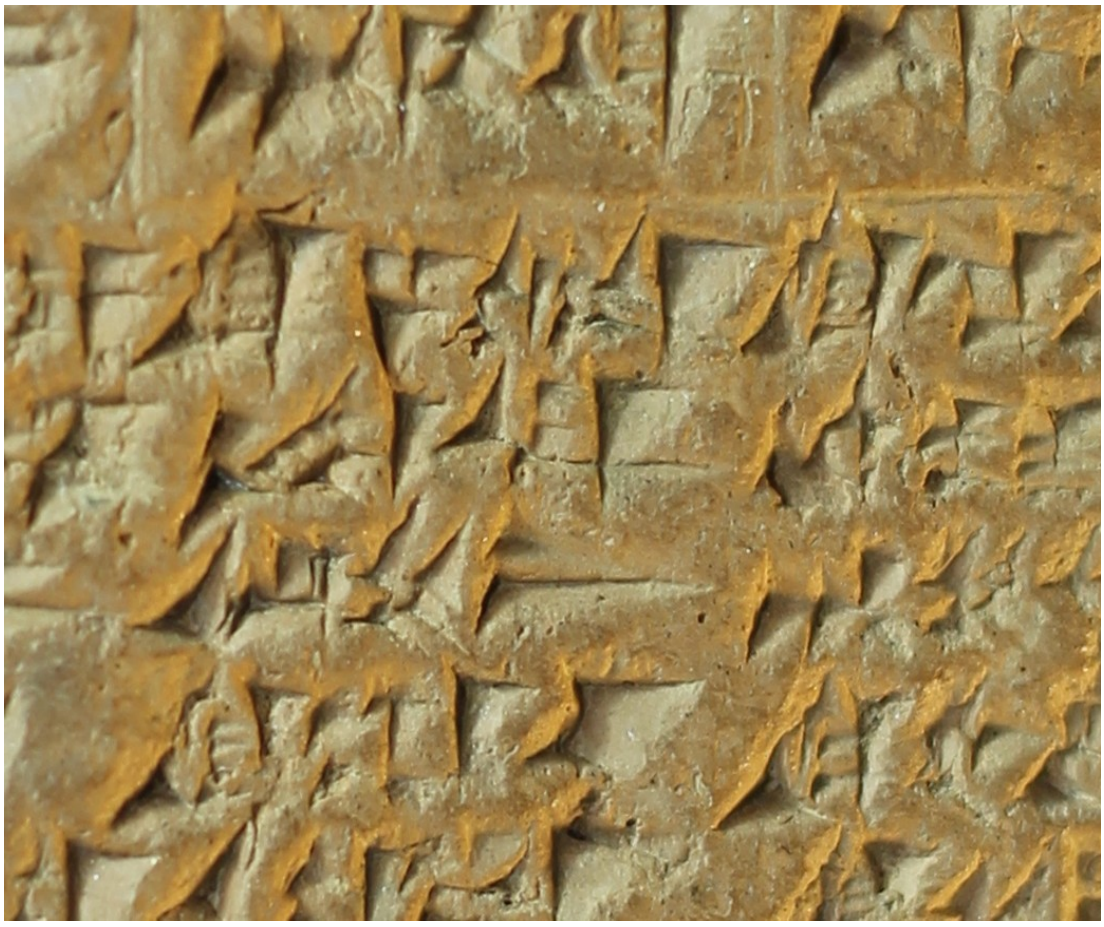

Figure 3: section of BM 41583 obverse showing overwritten incised vertical line

The micro-zodiac tables are not *headed*, in that there is no initial row outlining the content of each column, but each table does include a *preamble*. This initial piece of text consists, as mentioned previously, of a celestial eclipse omen which includes at the begin a lunar eclipse in the Major sign with which the table is concerned. Each column however is labelled with a zodiacal sign. The labels do not function as traditional headings, as they do not identify the type of contents in a row and only demarcate where in the overarching structure this material belongs. Rather, the text is organized categorically by its inclusion in a row, for which there are no headings but the cells are generally easily identifiable by their first sign. Row A almost always begins with the sign KI, Row B with the sign UD, and the Material Row often has E_2 in its first line, and then the sequence GIŠ, U_2, NA_4 as determinatives in the following lines. These clues would have indicated the type of contents in each cell in the absence of a formal heading.

Finally, one more aspect of the micro-zodiac worth mentioning is the re-ordering of the rows that occurs between tablets from Babylon and Uruk. The extant tablets from Uruk order the rows with the medical material first, followed by rows A, B, and C in order. Turning to the material from Babylon we find a different picture. The majority of texts from Babylon keep the Material Row first, directly under the minor sign headings. However, the next three rows are reversed in order from the Uruk material, running instead C, B, and A. This pattern is found in almost all of the manuscripts from Babylon, except notably on the tablet Text 11 (K 11151+), to which we will return shortly, and BM 42288+, which follows the Uruk order of rows.

This re-ordering of the rows suggests a few interesting things about the transmission of the astrological knowledge contained within the table.[422]

First, it should be mentioned that even despite the re-ordering of the rows between the exemplars in Uruk and Babylon, the content of the rows stays the same. A cell from Row A under Aquarius of Virgo on Text 7 (VAT 7847+) will contain the exact same content as the cell from Row A under Aquarius of Gemini on Text 3 (BM 34572):

> Text 7 (VAT 7847+): rev. (Virgo) Aquarius column, Row A
> E *u* PA_5 NU SI.ME ^{d}*ṣal-bat-a-nu* KUR_4-*ma* ^{še}GIG *u* ^{še}IMGAGA *ina*(!TAB) KUR $ZAḪ_2$ *ana* ^{d}SAG.UŠ ⌜*ana* ^{d}*dele-bat* $^{d}GU_4$⌝ [*u* ^{mul_2}BABBAR SI.SA_2.ME]
>
> Dike and ditch will not be in order, Mars will be bright, wheat and emmer will perish in the land, for Saturn, for Venus, for Mercury [and Jupiter (they) will go well.]
>
> Text 3 (BM 34572+): obv. (Gemini) Aquarius column Row A
> E *u* PA_5 NU SI.SA_2ME ^{d}*ṣal-bat-a-nu* KUR_4-*ma* ^{še}GIG IMGAGA *ina* KUR $ZAḪ_2$ [*ana* ^{d}SAG.UŠ *ana* ^{d}*dele-bat* $^{d}GU_4$.U_4 *u* ^{mul_2}]BABBAR ⌜SI⌝.SA_2.ME
>
> Dike and ditch will not be in order, Mars will be bright, and wheat and emmer will perish in the land; [for Saturn, for Venus, Mercury, and Jupiter] (they) will go well.

Apart from a few small orthographic differences these two sections are very similar. The first text places Row A near the top of the tablet just under the medical Material Row, the second text places Row A at the bottom of the table as the last row above the row of numbers. This means that the content itself was divorced from a single table layout and that the rows themselves were conceptualized as independent pieces of knowledge not related spatially to

422 For more information see Monroe in press.

one another, albeit while still maintaining their place within the organizational structure of the micro-zodiac scheme.

Another example of the divorcing of the content from a particular fixed tabular layout is tablet (K 11151+). This tablet contains a compressed, or abridged, version of the micro-zodiac table. The obverse of the tablet is split into groups of three rows, each group set off from those before and after it by a double ruling. These three rows contain the Material Row, Row B, and Row C (in that order) from the traditional micro-zodiac table. Unfortunately the reverse of the tablet is not preserved. The identification of the content on the obverse suggests strongly that one side of this tablet would have contained abridged versions of six of the micro-zodiac signs, and presumably the reverse would have contained the other six, making a total of twelve signs on one tablet. From the perspective of the tabular layout, what makes this tablet particularly interesting is that the minor-sign labels, so prominent on the other texts, are completely absent here. Their absences complicates the text considerably, not only are the minor-signs of the columns not identified, the organizing structure of the tablet means that they shift with each new section. Any reader of this text must have been intimately familiar with the overall structure of the micro-zodiac prior to using this tablet.

Thinking about the micro-zodiac table in a formalistic sense, partially informed by Robson's terminology, we start to notice some interesting patterns in the way in that the table operates. Firstly the rows have an internal organization which places the medical Material Row

in a separate category to the other three rows (A, B, and C).[423] This can be observed most clearly by the fact that the Material Row is always first while the other three rows follow even when their order is reversed. Secondly in all cases the number row comes at the end as the last row of the table. This would suggest that it has an overall organizing role in the layout of the material and is not counted as part of the textual content. Traditionally organizing features appear at the borders of tables in order to govern the content contained within.

Finally, it is worth investigating the minor sign headings on the tables. They appear at the top of each column and are always written perpendicular to the normal flow of text. Any orthographic concerns about fitting the names of the zodiac signs onto one line of text by rotating the cells must be abandoned because of the wealth of names planets and signs in other cells that are split over multiple lines by the borders of their cells. The orientation of these zodiac headings therefore must be an element of the layout. Notably they are absent on Text 11 (K 11151) which means that they were not necessary for comprehension.

5.7 Conclusion

This chapter sought to investigate the tabular formatting of the micro-zodiac itself. In the conclusion I would like to revisit a few issues brought up in the previous sections. First the role of tabular formatting and the micro-zodiac tables in dealing with the issue of the entropy of knowledge. Next, I would like to look at the way in which formats and texts can merge in

423 Interestingly, K 11151+ omits Row A while keeping the Material Row. This suggests that this tablet comes from a slightly different tradition than the rest of the micro-zodiac tables which all have the same number of rows.

new compositions. Finally, I will outline some of the reasons for excerpting contents into a table.

Coming back to the concept of the entropy of knowledge mentioned earlier in this chapter, perhaps one way in which tabular formatting can be contextualized is as a strategy for the preservation of esoteric knowledge. Certainly by this late period in Mesopotamian scholarship the well-known and recopied traditional textual series were lengthy and perhaps difficult to reproduce in perfect form or in fact to use in practice. There is a tendency for organized knowledge, in this case the omens of an extensive omen series, to suffer from entropy, as mentioned before. In this case entropy can be defined by two mechanisms. The first is of course the simple fact of omission of content, or introduced errors during the copying event. When creating a new copy any missing text cannot be transferred on to the new medium. This can happen in a number of ways, either an entire piece of text can be missing, or a small part can be broken and unreadable.

The tabular layout of the micro-zodiac may have been a response to the entropy exhibited in other textual material. The tabular layout solves both of the mechanisms of omission and disorganization solely through the format in which the content is placed.[424] Firstly, any omission within the table is immediately obvious as all of the content within the series has its specific unique place. When copying from one text to another it becomes clear when a sec-

424 It is interesting, perhaps, also to think of the tabular formatting as replicating a feature that Martin Worthington has described as the "fits and starts" method of reading (Worthington 2012, 242). Here each cell would function as an individual unit allowing the reader to focus entirely on the reading of the signs contained within physically demarcated space. This would take care of many of the issues brought up by Worthington related to spacing and visual appearance of text.

tion might have been overlooked or a particular tablet was unavailable. This is not to say that these tablets were kept in pristine condition and never suffered any damage. VAT 7847+ contains a section on the obverse after the micro-zodiac table where significant damage must have existed on the original manuscript as the current text is full of a long string of "broken" annotations. These annotations include both the simple "broken" as well as the more detailed "new break". There is one "broken" gloss within the table itself, although the tablet is quite damaged at this point. After the table finishes, within the first column of the glosses, almost all the lines feature a "new break" gloss in the middle of the line, with a few "broken" glosses included at the ends of the lines. This suggests that these two parts of the current tablet came from different source manuscripts, one which already include "break" glosses which were copied over verbatim, and the other which was recently damaged and therefore was noted by "new break" glosses. It also potentially suggests that the micro-zodiac table and the section beneath the table might differ in relative age. The text with more "broken" glosses being older and therefore having suffered more damage, although this is very difficult to establish and could be a product of many other factors. If the relative ages are not a factor in the amount of breakage, it might then suggest that the tabular formatting of the micro-zodiac allows the text and its copyist to overcome damage by using the schematic nature of certain rows to fill in missing or damaged sections.

A good piece of evidence for the combining of different textual traditions and texts on to one tablet is BM 56605.[425] This tablet preserves, on the obverse a two column text concerned with astrological medicine, very similar in content to the 29th tablet in the Babylonian diagnostic handbook, in addition to a text that links certain parts of the body to celestial objects.[426] However, the reverse of this text contains a table running perpendicular to the orientation of the text on the obverse, to the right of this table is a small single columned table. This small text contains thirteen entries for a well-known medical scheme listing, stones, plants, and types of wood.[427] In this case the medical ingredients are linked with signs of the zodiac and combined with prohibitions on the consuming of certain foods, very similar content to the micro-zodiac.

Returning to the table, it contains thirteen rows and twelve columns. In the first row the names of the zodiacal signs are written, and then below each cell of the columns contains a word and a number. While the interpretation of this table is not entirely clear, the scheme might represent some sort of form of astrological medicine in tabular form. Mark Geller suggests that the new connections and influences between zodiacal signs, medicine, ailments and parts of the body found on other texts of this period could be expressed in a tabular form similar to what is found on the reverse of BM 56605.[428] This tablet represents three types of for-

425 Initially edited by Heeßel (Heeßel 2000, 112–130). It has since been treated by Wee (Wee 2015).

426 Heeßel 2008, 11–12

427 Heeßel 2005

428 Geller 2014, 93 n. 3

matting with literary texts. The first is the prosaic paragraph based traditional format exhibited on the obverse. Here the continuous text is only broken by horizontal rulings; in fact two distinct texts are concatenated together. The reverse contains the other two types. The first is the one-dimensional list where items are placed on a horizontal axis according to an organizational paradigm, in this case the signs of the zodiac. The second is the large table that takes up most of the reverse side of the tablet. This table is organized along two axes, horizontal and vertical. The horizontal axis is depends on the ordering of the signs of the zodiac, while the vertical axis follows an as of yet unknown organizational scheme. The combination of all three of these forms of layout shows that similar knowledge could exist in all styles. Scribes of this period seemed to be familiar and comfortable in prosaic and tabular formats for astrological content at least.

Ulla Koch has argued that the more complex omen texts, such as *Multābiltu* and the *Niṣirti Bārûti*, perhaps represent "a step towards more abstract thinking."[429] around divination.[430] While these texts are not tabular *per se*, there are characteristics of the text which still inform the reader of a process behind the scenes that informed the composition of these texts. A good example of this is found on a few of the tablets of the series *Niṣirti Bārûti,* "the secrets

429 Abstract thinking here should not refer to a developmental change in a capacity for reasoning. Rather, it represents a change in the way the underlying analogical reasoning of divination was applied to or expressed in the texts and data at hand. The comments here refer only to an understanding of scholarly culture and not the mind of a Mesopotamian scribe. Rochberg has argued convincingly against any sort of developmental shift in the capacity for reasoning, showing that analogy and correspondence was always a part of the scholarly tradition (Rochberg 2015). My understanding here is that it is only in the method of application and expression that a shift occurs during this period.

430 Koch 2005, 1

of the art of the diviner". They contain the caption: "Omina which are strange/unfavorable in extispicy and their characteristics, suitable for learning."[431] The texts on which this caption is found are part of a section of the text which tries to combine protases. Some of the protases have shared apodoses in other texts, in other cases the link is unclear.

28 [If the top of the Finger is atrophied] and the top of the right Plain of the Finger is split.
29 [If the top of the Finger is atrophied] the top of the left Plain of the Finger is split. (Text 37: 28-29)[432]

The entries in this section alternate protases in a logical order creating a paradigmatic structure of divinatory logic.[433] The choices being made in the selection of certain protases is indicative of the processes that are going on behind the scenes when tablets are written down. In this case omens were selected, from a very large corpus, for the purpose of teaching relationships and illustrating how the divinatory logic functions, or perhaps finding and interpreting new relationships.

With the micro-zodiac series a similar phenomenon is happening. The use of tables to represent the inter-woven network of astrological knowledge is particularly effective when the purpose of the text is to expose ideas and inter-connections between the stars and various forms of advice. The chosen format serves the purpose of making these associations clearer

431 Koch 2005, 55

432 Koch 2005, 331

433 Rochberg comments on the logic of divination as using both analogy and reference embedded within a conditional syntax "If P then Q" (Rochberg 2010).

but also in representing well-known excerpts of traditional knowledge in a radical new layout making them both easier to understand and read. The multiple forms the table can take (Babylon, Uruk and Text 11 (K 11151+)) show that the general paradigm was known. The scribes working on each of the tables knew in general what knowledge to include and how to relate it to the micro-zodiac scheme. They even knew that certain sections were the same according to their minor signs. But the end result could differ slightly, in the case of Babylon and Uruk, or greatly in the case of Text 11 (K 11151+). Other texts used the general knowledge of the micro-zodiac series but excerpted it for a different purpose. BM 33535 takes two columns of the micro-zodiac table from Sagittarius and includes ritual material, all contained in a linear format.[434] This text points to the way in which the micro-zodiac material was conceived of as a unit made inter-connected through the tabular layout the ordering and associations found on the tablet mirror those in the appropriate micro-zodiac table.

The tabular format of the micro-zodiac series is key to the creation of meaning and presentation of disparate knowledge culled from long-standing Mesopotamian academic traditions. The use of the table, in its varied forms, allows for the combination of materials, celestial omens, daily and cultic advice in a scheme which links it to a mathematical permutation of the zodiac. The micro-zodiac material differs from other tables in Mesopotamian literature because the organizing scheme is an artificial creation and the content comes from many disparate sources. Looking at contemporary texts and scribal traditions we can see that the use

434 Hunger 2007

of linear or prosaic texts is in no way superseded by this tabular format even within the genre of astrology. Thus, we must look for other reasons behind the choice of format.

In this chapter I have argued that the generative quality of reading through a table allows for knowledge to be organized in new ways and meaning created with every use of the table. In a genre of knowledge which thrives on new associations, like astrology, broadening the physical relationships to two dimensions through columns and rows, allows for new associations to be made with old material. Parallel to this idea of a generative text there is also the basic understanding that with a complicated diverse set of contents a tabular format organized with a strict governing paradigm allows for easier access to data and a change in the method of reading and senses involved. Individual cells can be located more quickly, or data within a row can be compared across a wider swath of time than if the text were oriented linearly. Finally, the tabular format also possesses some degree of textual preservation through the bounds imposed upon the knowledge and the repetitive nature of certain sections of the text. As texts become larger and ungainly to work with, the tabular format offers a layout which restricts and condenses knowledge into an internally logical arrangement. While the micro-zodiac series was not the first table of literary content within the history of Mesopotamian scholarship, it offered an original development on this format. The table as a diagrammatic way of visualizing knowledge owes much to the shifting nature of scholarship during this period in cuneiform's history.

6 Conclusion

In this dissertation I sought to place the micro-zodiac texts within their scholarly context and investigate the processes by which they were conceived, composed, and read through the addition of new textual fragments previously unpublished. From this study it is clear that there is much more work to do to understand the intellectual world of Late Babylonian astrology and its connections both with its own past and neighboring traditions.

The micro-zodiac texts edited in this study display a complexity both in form and underlying function that is predicated on analogical modes of thinking present in prior forms of divination. In Chapter 4 I tried to put the micro-zodiac texts themselves in the scholarly context of the period and examine in what ways they interacted with and built upon contemporary or preeceding texts. In particular, the chapter dealt with the way in which the micro-zodiac texts represented a form of divinatory science.

The "If P then Q" logical structure of divination, which had existed from the earliest forms of the science, is operative in the physical syntax of the micro-zodiac texts. However, in contrast to "traditional" forms of divination, the logical structure itself is only found in the visual structure of the text. I see this development as a form of abstraction, where the syntax of divinatory relationships is understood and the two halves of an omen, protasis and apodosis, can be placed seperately, no longer bound in the same clause. The micro-zodiac is able to place these parts in a rigid visual structure with the protasis, representing the Major and mi-

nor sign, inherent in the tabular format of the text, and the apodosis, the cells, given a unique location dependent on its content.

This abstraction of content supports Rochberg's assertion that the the logic of divination (and other forms of knowledge) were not concerned with the possible or impossible, "the empirical element".[435] She references the lexical list as an example of substition in both the horizontal, paradigmatic, and vertical, syntagmatic, axes. With each line one element of the previous line is replaced forming a new combination and therefore new knowledge. The micro-zodiac texts operate on a similar pricinciple with each new column or row changing the previous content in predictable ways forming new relationships and new knowledge. This topic was covered in Chapter 5 in the discussion of the generative qualities of the visual structure of the text. Association made through substitution were displayed graphically in the columns and rows of the micro-zodiac forming new knowledge through the representation of the internal logic.

The micro-zodiac tablets make it clear that the divinatory content that made up the cells was not selected for its empircal or historical veracity, but rather because it fit within the paradigm. This is most evidence in Row B where the *pīt bābi* ritual is prescribed for eight of the twelve entries. The dates of practice for this ritual are preserved in other texts of the period and do not match with the micro-zodiac content. This is due to the fact that the Row B cells rotate with each new micro-zodiac table, therefore the occurences of the ritual move through-

435 Rochberg 2009, 22–23

out the month, occuring at times which are not expected in the traditional cultic material. Empiricism was most likely not an element by which this text was judged, more important was the overall completeness of the micro-zodiac scheme.

The idea of completeness as a desirable quality of the text can be supported by a number of elements in the text. First, the fact that two of the rows repeat under each Major sign suggest that the contents were not unique elements of a divinatory clause, "If P then Q", but rather created and inserted into the micro-zodiac scheme in order to fill a regularly occuring location throughout the twelve tables. The Row A material could exist as a seperate list of twelve items, but placed within the micro-zodiac columns it gains new significance with each new pairing of Major and minor sign. Second, the Number Row at the bottom of each table overlaps by two numbers with the table directly following. Whatever meaning we assign to the content of this row, the overlap would seem to be antithetical to its purpose if it represents a unique and meaningful element of the divinatory paradigm. Rather, I think that the Number Row was derived from the Calculation Row and filled the bottom of each table with descending numbers which, after the left-most initial entry, no longer had bearing on the content in the columns.

Closely related with the idea of completeness is Ulla Koch's designation of this material as "combination" texts.[436] The micro-zodiac texts excerpted and combine multiple forms of knowledge, from weather omens to declining number series (to use the above example), into a

436 Koch 2015, 203–208

larger text which was governed by a schematic structure. Unlike compilation texts, her other category, combination texts are bound by their structure within which the text is contained. This creates a logical end or scope to the concept behind the text. For instance, each micro-zodiac table has only twelve columns, a number derived from the twelve signs of the zodiac. This means that the textual content destined to populate the table must fit within the constructed paradigm.

While many overarching concepts hold true for all of the micro-zodiac texts and the abstract way in which they functioned seems to underlie all exemplars, there remain differences between the text traditions found in Uruk and Babylon. The most obvious of these differences is the lack of imagery on the tablets from Babylon and the reordering of rows between the two traditions (discussed in Chapter 5). In a study of astronomical and astrological traditions in Babylon and Uruk Steele noted the differences in terminology and orthography between the two cities.[437] He concludes that many of the differences were due to scribes in Uruk trying to promote their own identity. While we might expect to see evidence in the Uruk tablets of elements of Uruk culture replacing content, for instance the god Anu replacing Ea, as in Steele's example, this does not seem to be the case in the micro-zodiac texts. As shown in section 3.6 above Anu is by far not the most common god within the Row B material with only two occurences.

437 Steele in press

It might also be tempting to think of the imagery on the Uruk tablets as an element added to the text by scribes trying to assert their own identify onto the otherwise Babylonian text. However, the existence of labels on the texts from Babylon presupposes the existence of some form of imagery. While our corpus is small, it certainly is true that the two large Uruk exemplars were written with more care than some of the texts from Babylon. The columns and rows are particularly well delineated and the content fits well within each cell. Despite the differences between the two traditions and the varying quality of the texts, it is remarkable how uniform the content remains. A Row A cell from Text 1 (BM 42288+), with its squashed columns of no more than two signs and faintly incised lines, is the same text as the equivalent Row A cell on Text 7 (VAT 7847+), with its imagery and broad, well demarcated table. Additionally, aspects of the structure, like the perpendicular headings are also the same between the two traditions, suggesting that not only the concept of the micro-zodiac scheme was shared between the cities but also a general overview of how the tablet was supposed to be laid out.

The micro-zodiac texts embody a shifting nature of scholarship in Late Babylonian society. The developments in content, format, and paradigmatic structure can all be found in related texts, but the micro-zodiac series combines them into one text. It should not be overlooked that the visual presentation of these texts is stunning, their rigid lines and contents bunched into cells spanning the width and height of the tablet is still impressive, nevermind the illustrations present on two of the texts from Uruk. These were clearly texts made with

much care and forethought, both in planning the scheme and contents, and also laying out the careful structure of the text.

I have no doubt that more micro-zodiac fragments will be found both in the collections of the British Museum and elsewhere. When they are found, they will help complete the picture of this text. However, thanks to its paradigmatic nature we already have a good idea of the contents and how the text operates. Perhaps, the state of our current understanding should gives us a clue to the reception of this text by ancient scribes. While an ancient scholar might endeavor to have a complete set of these tablets, having one or two provides a wealth of information all organized so that one can quickly find the desired content.

The micro-zodiac texts do not represent an attempt to divine a more perfect description of the world, through the association of varied contents and zodiacal signs. Rather, they represent an attempt by scribes to essentialize Late Babylonian astrology. Weather omens, medical materials, cultic instructions, and daily advice were all selected from their source material and inserted into the micro-zodiac scheme. In many cases the noticable lack of direct parallels between material in the cells of the micro-zodiac and other related texts should suggest that the composition of these tables was not done by excerpting material from its source context along with the system of logic present there, but rather inserting it into a predetermined paradigm, that of the micro-zodiac. For instance, the Material Row content does not follow the order of a known lexical list. Likewise, while the Row C material parallels content from the Babylonian Almanac it does not borrow blocks of content in sequence. Rather, the entries in Row C are

chosen based on an association derived from the micro-zodiac scheme: days are included and omitted based on the logic of the micro-zodiac text rather than the source text. At the same time this process, whenever it happened, was then standardized as the contents between the Uruk and Babylon texts are for all intense and purposes the same. It is especially striking that the material even in the non-standard rows, like the Material Row, can find parallels between Uruk tablets and Babylon tablets. This suggests that the micro-zodiac existed as a remarkably stable series in both cities. However, crucial to this point is the fact that order of the rows changes between the two traditions. To refine the previous point, the micro-zodiac texts existed as a conceptual framework and the contents of the cells was independent of any one particular way to represent the text.

The micro-zodiac texts, therefore, represent a truly paradigmatic understanding of astrology. They relate a variety of traditional forms of Mesopotamian learning to signs of the zodiac organized through a scheme that subdivides each sign by twelve. This produced an overarching table with 144 columns, each of which contained slightly different content and could be physically conceived of in a variety of ways. The cells of the micro-zodiac table contained information taken from typical genres of Mesopotamian scholarship which offered answers to a wide variety of queries. The individual tables themselves were visually impressive, each taking up most of the face of a tablet and highly organized with incised lines demarcating columns and rows. Fundamental to the presentation of the table was the underlying analogical system of reasoning that had existed in Mesopotamia for thousands of years.

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Plates:

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Text 1 (BM 42288+):

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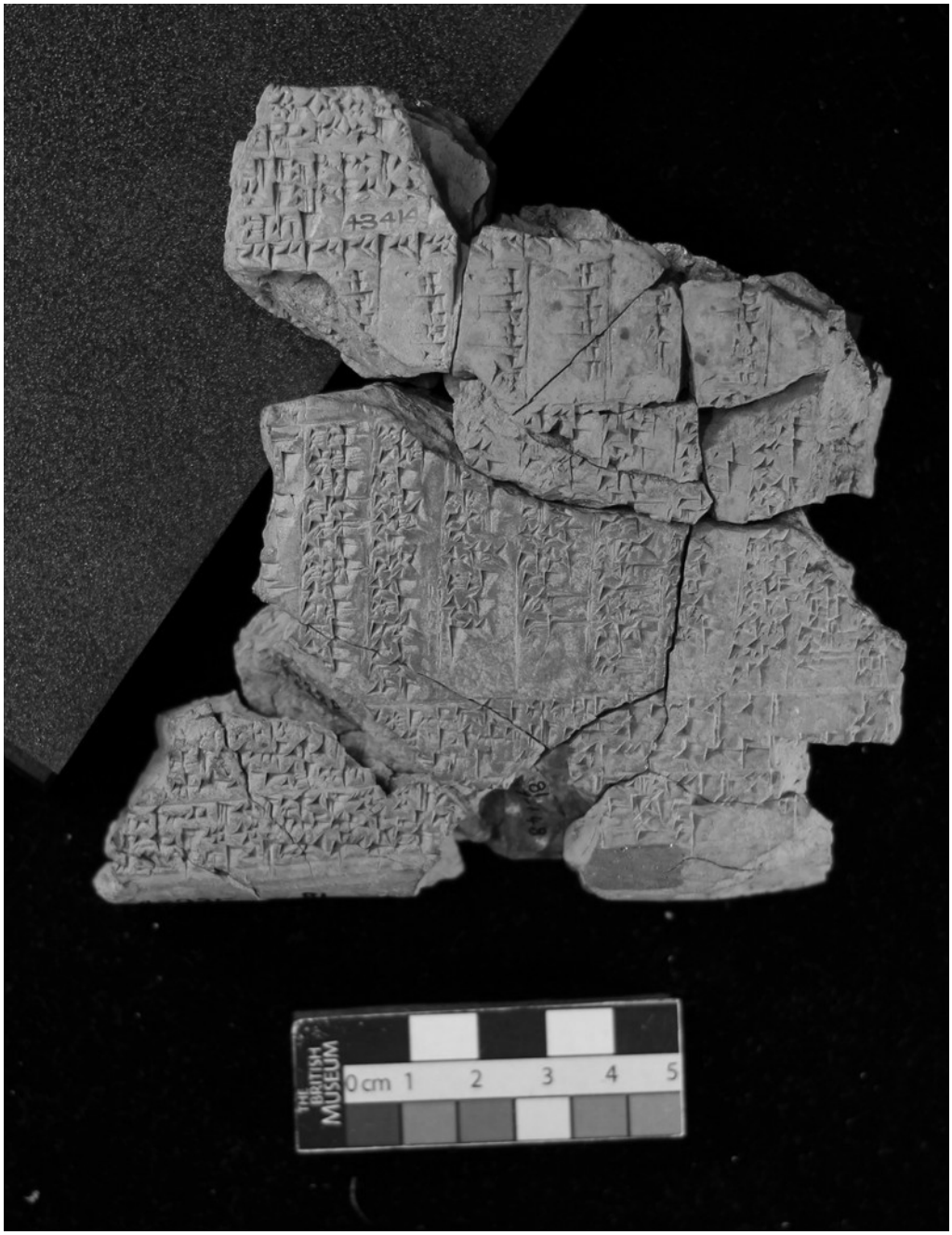

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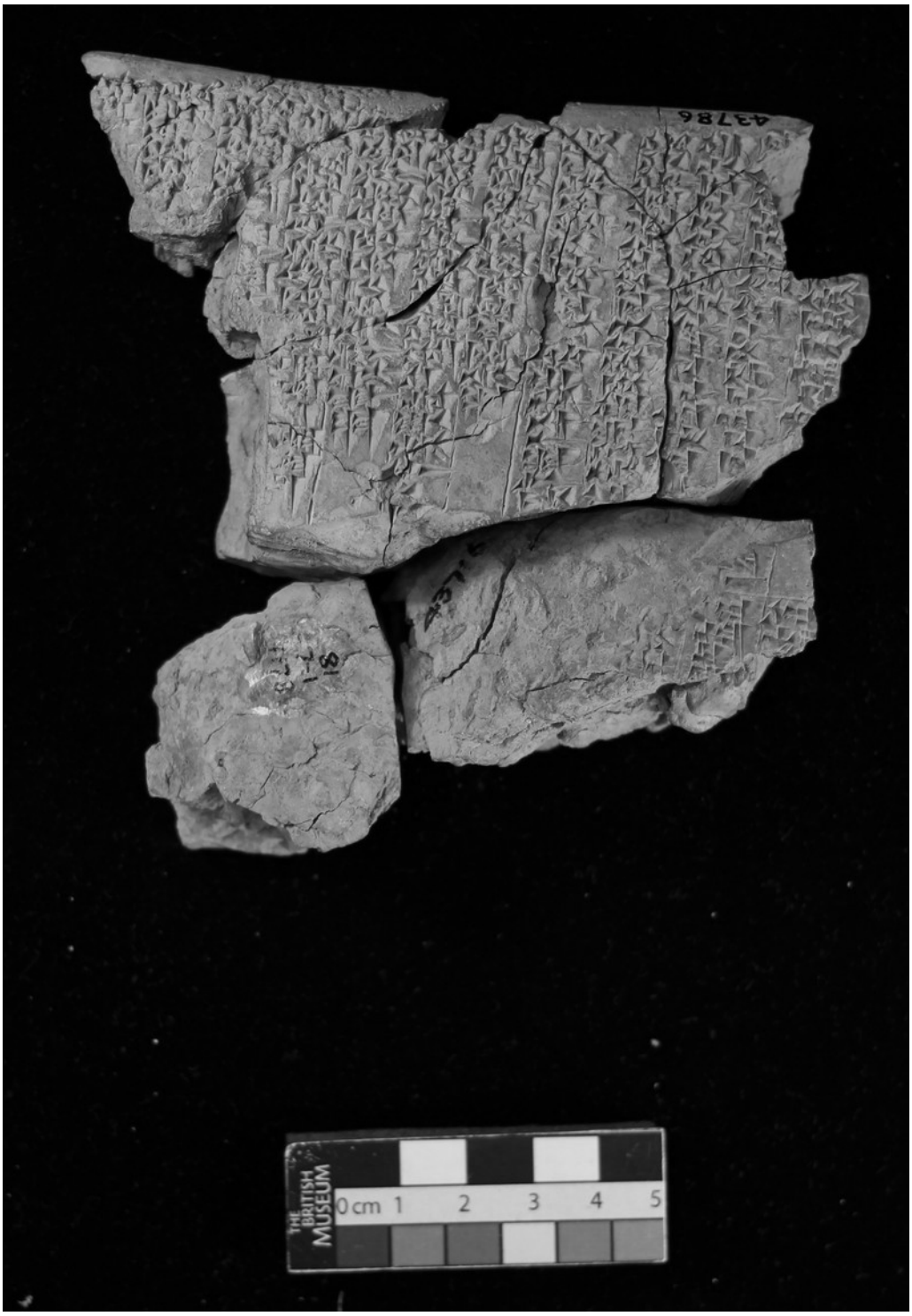

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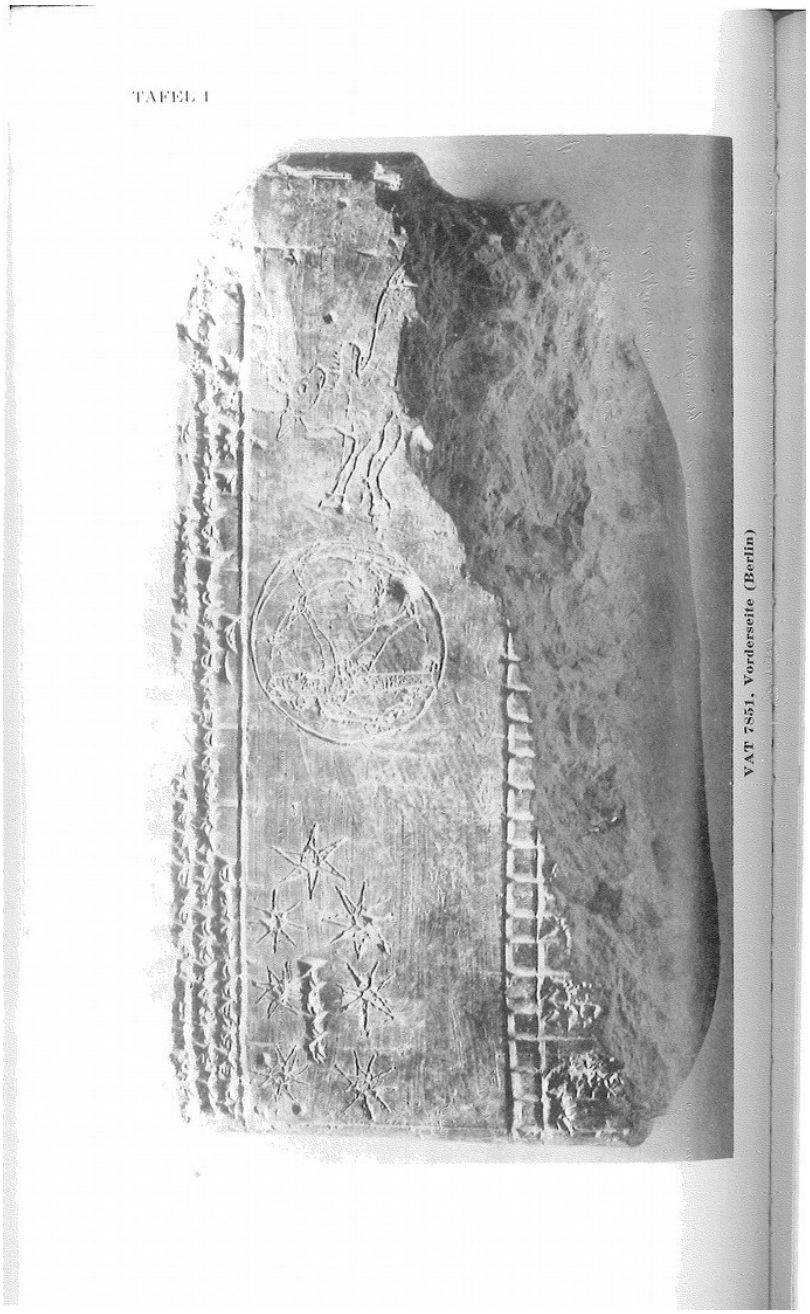

438 Taken from Weidners' plates (Weidner 1967).

Reverse:

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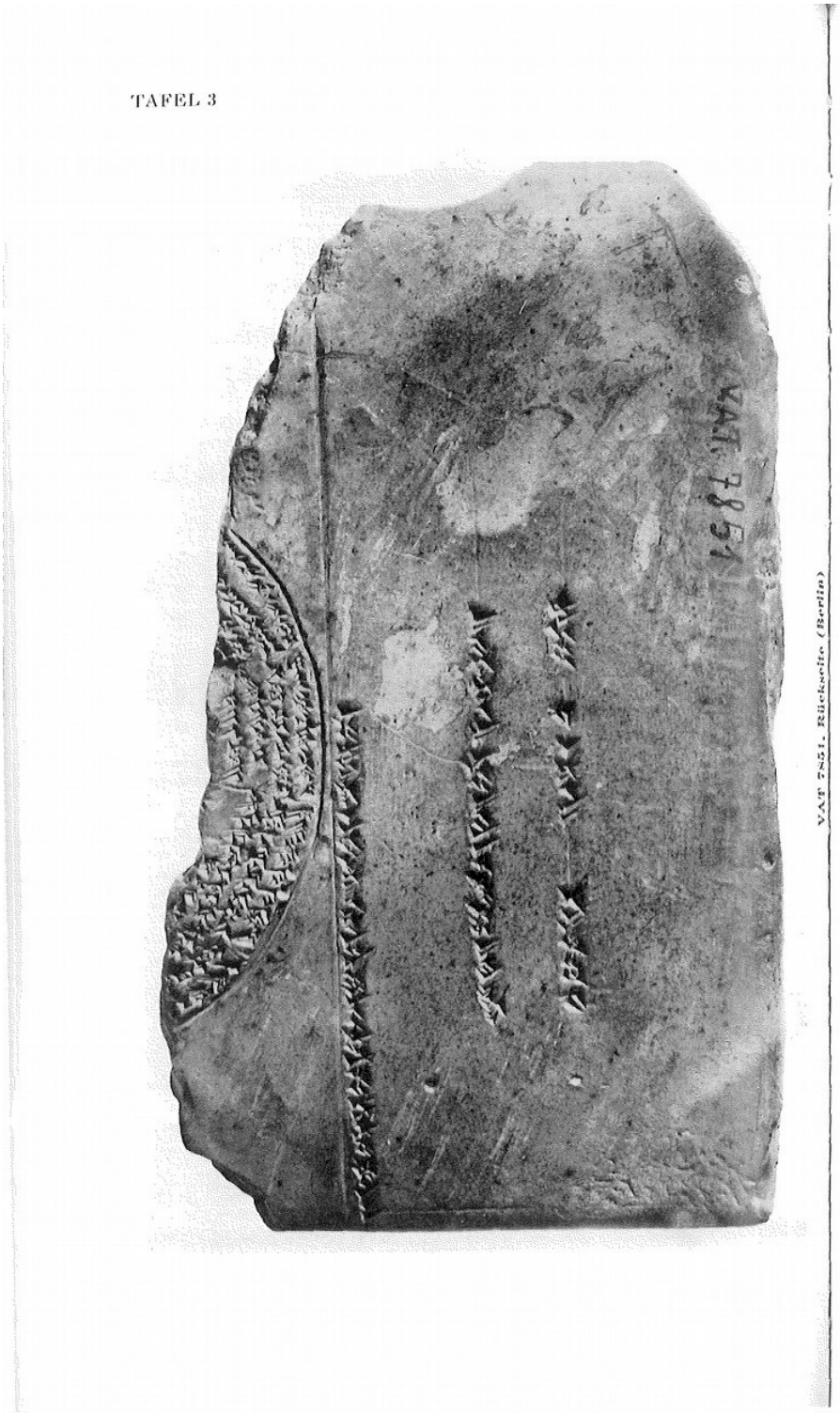

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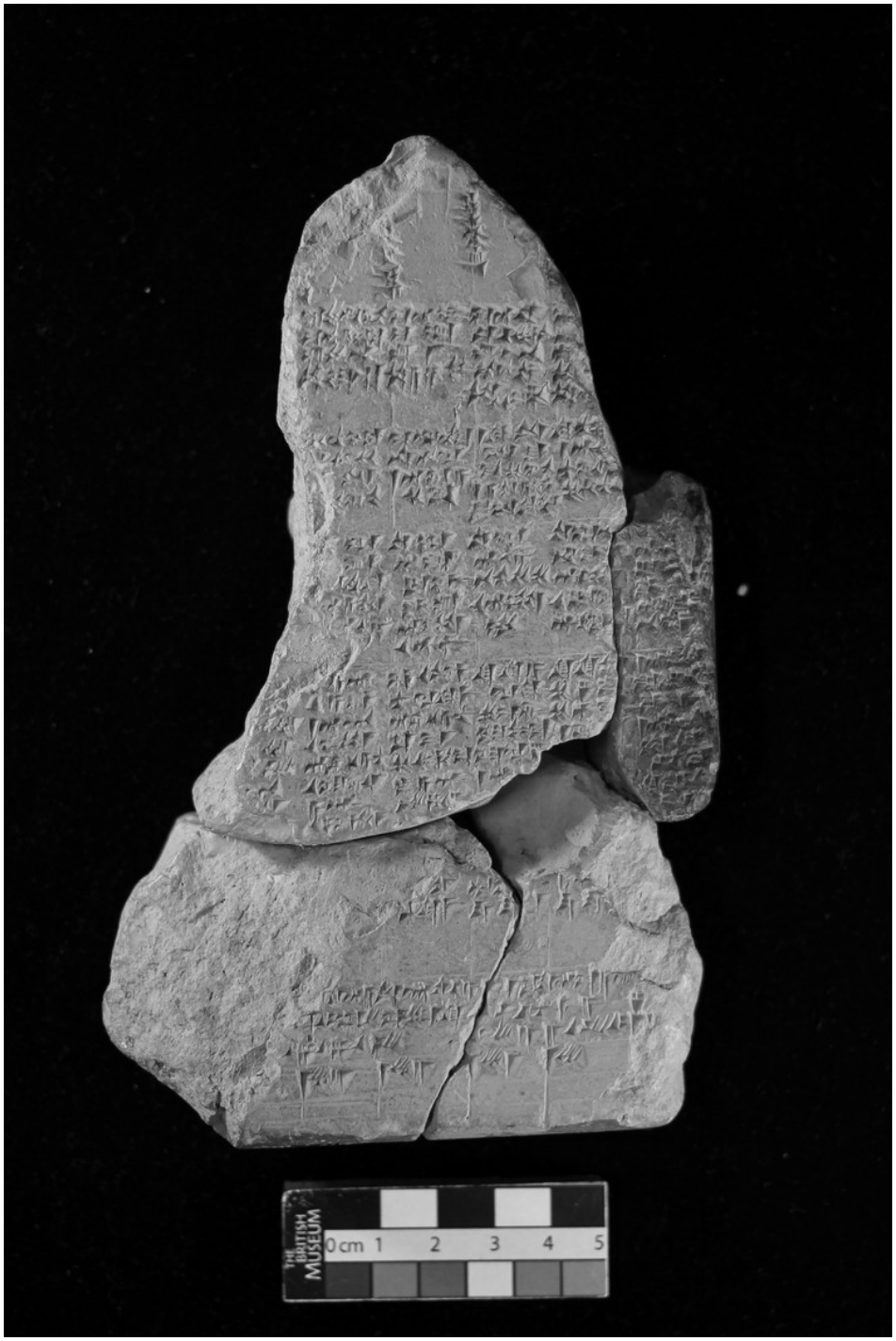

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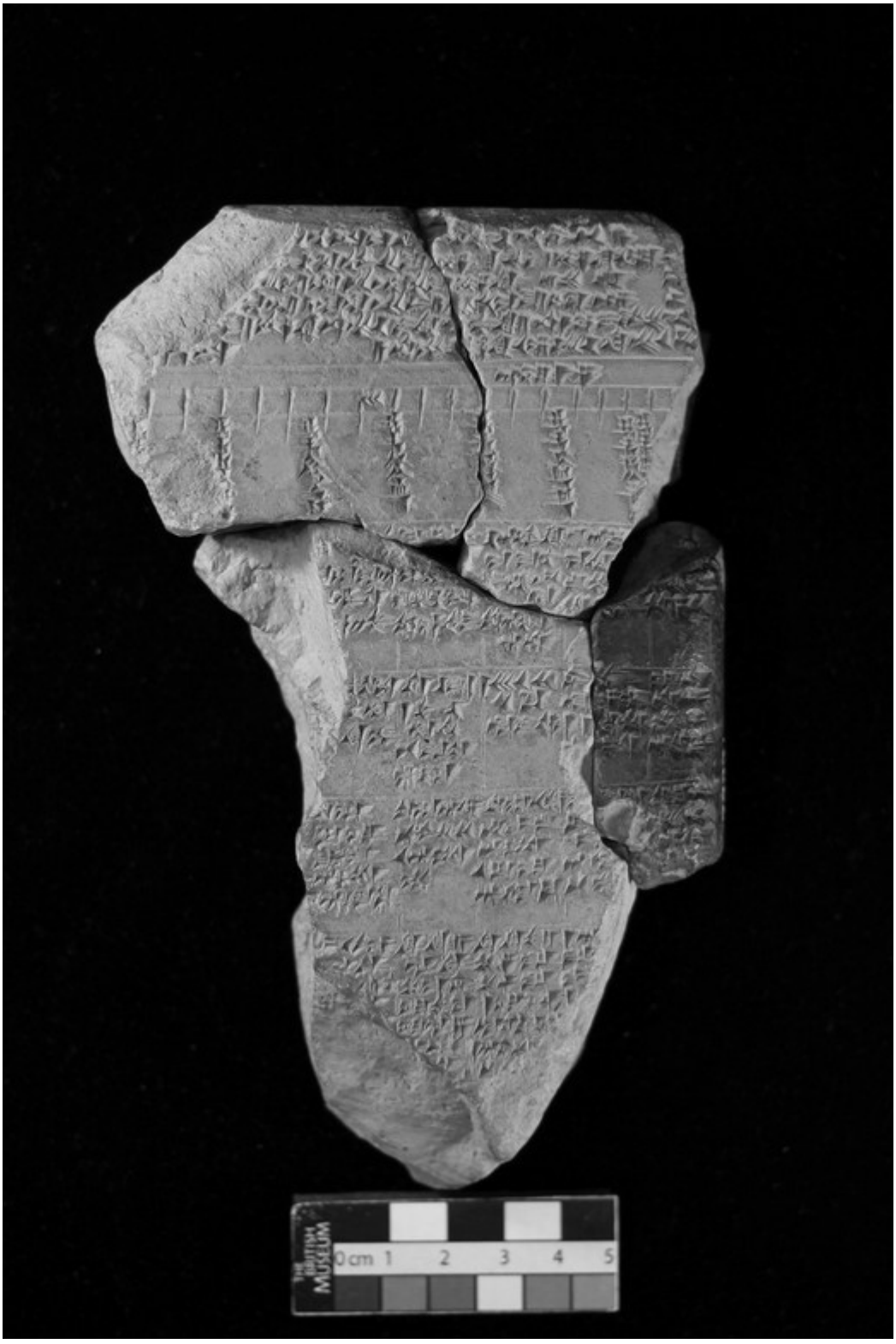

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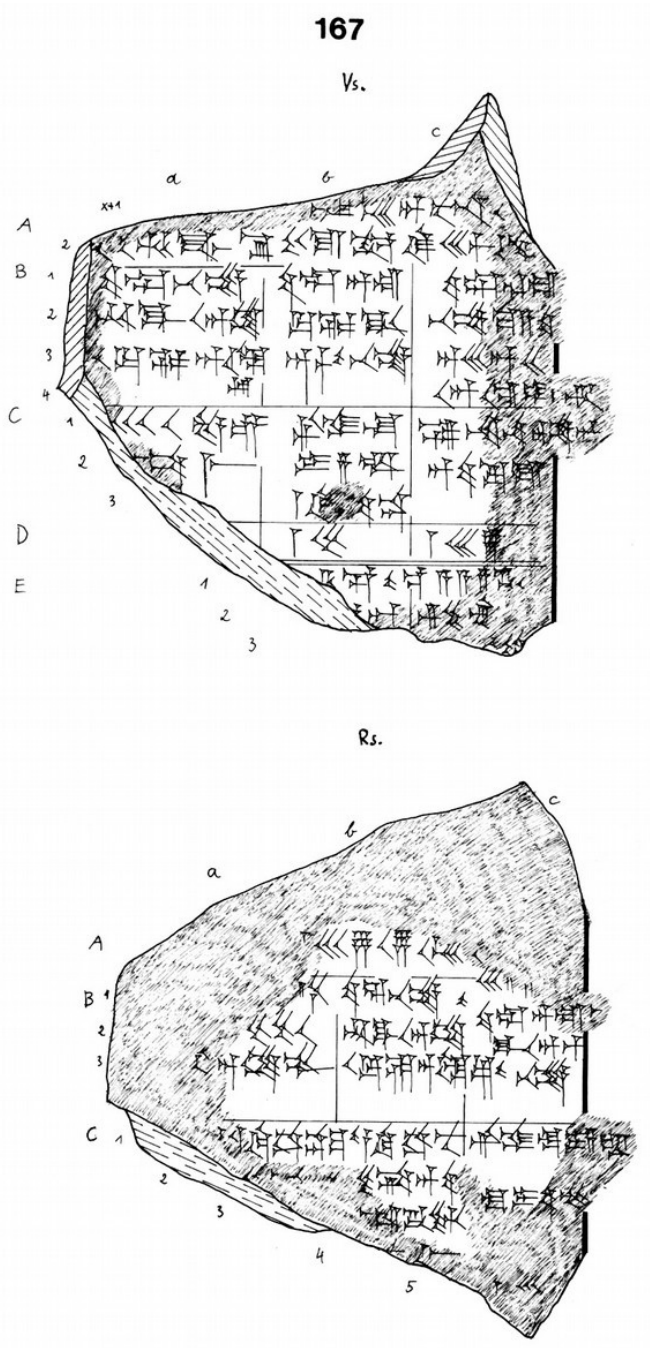

439 taken from SpTU 4 (note obv and rev should be reversed).

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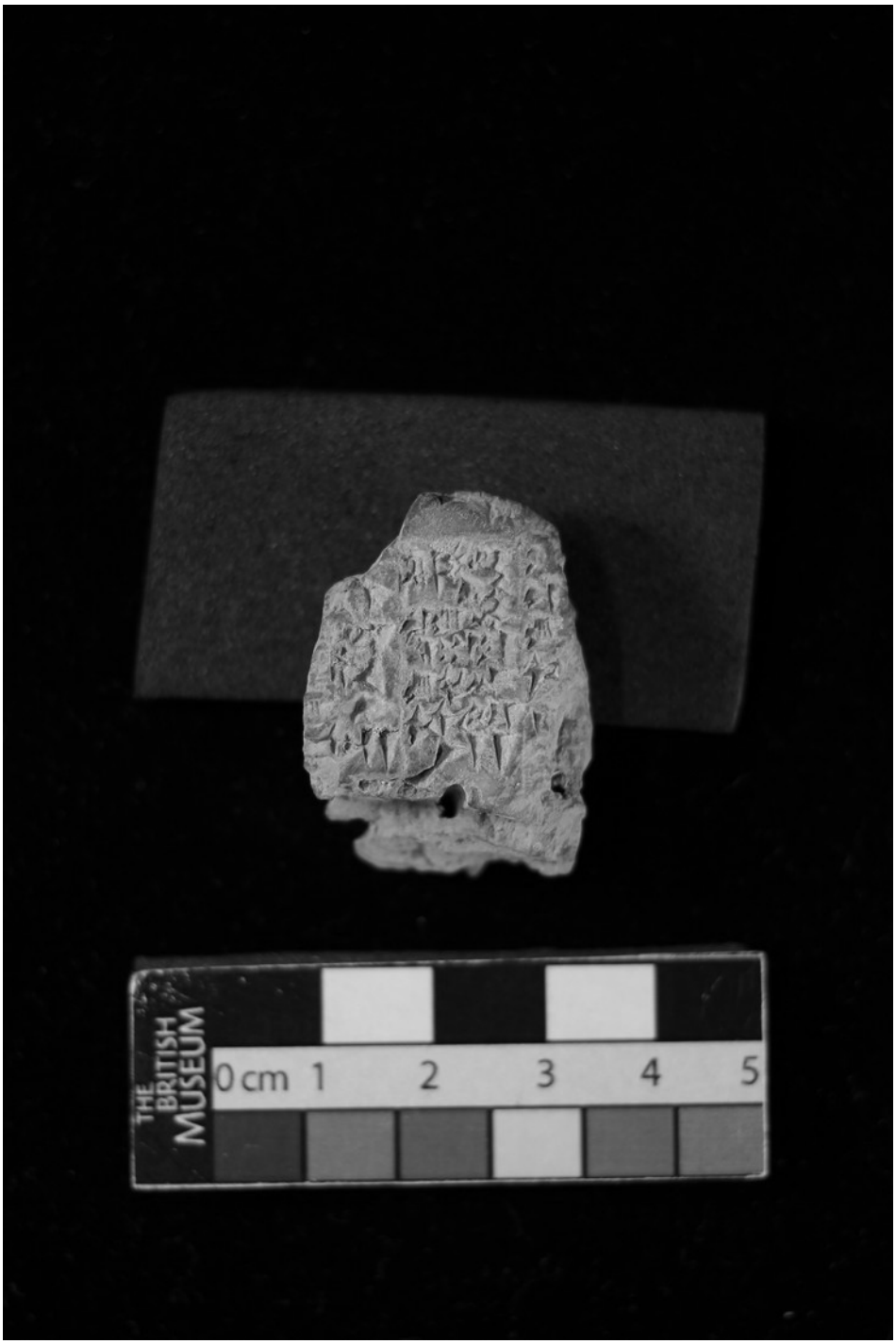

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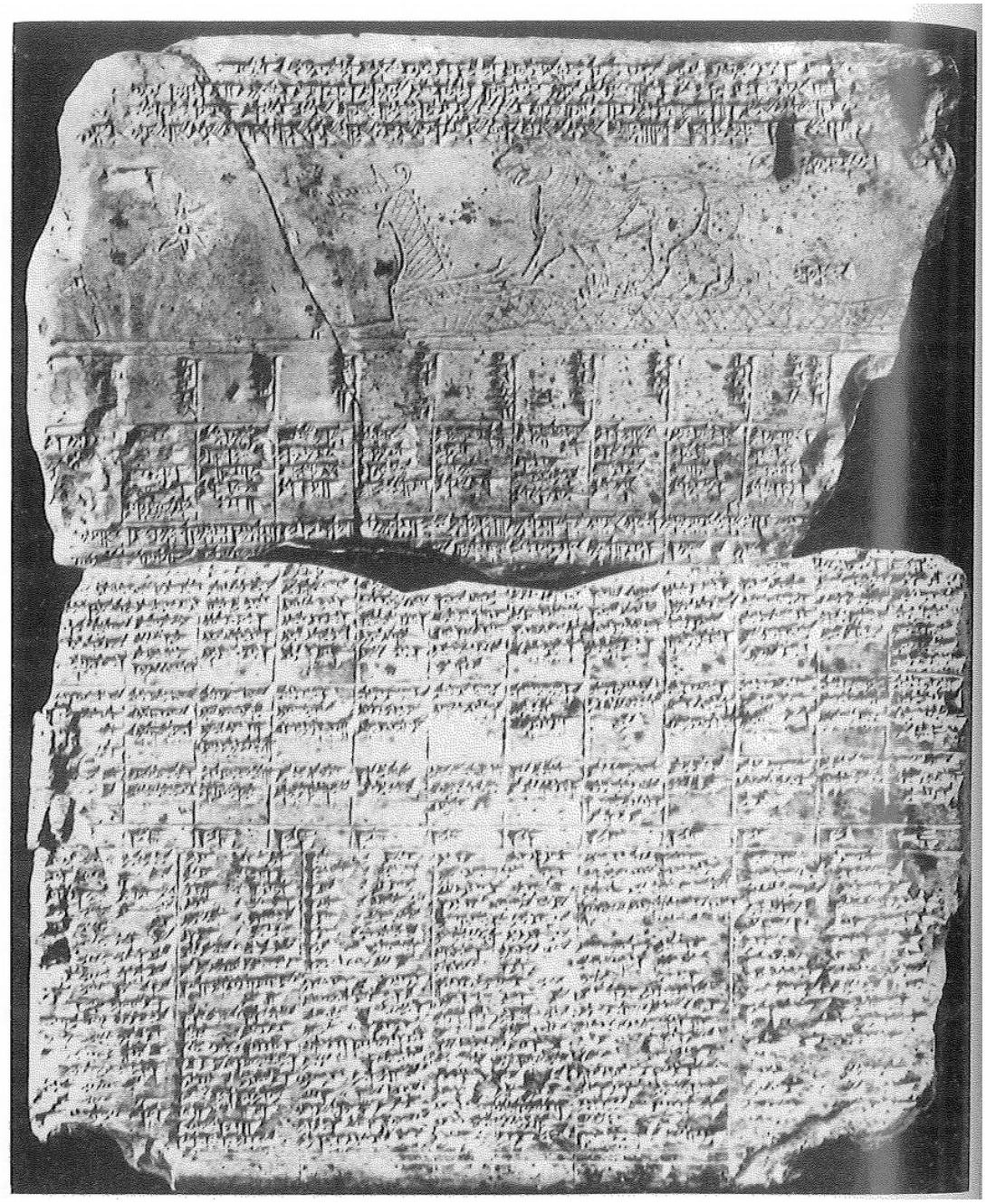

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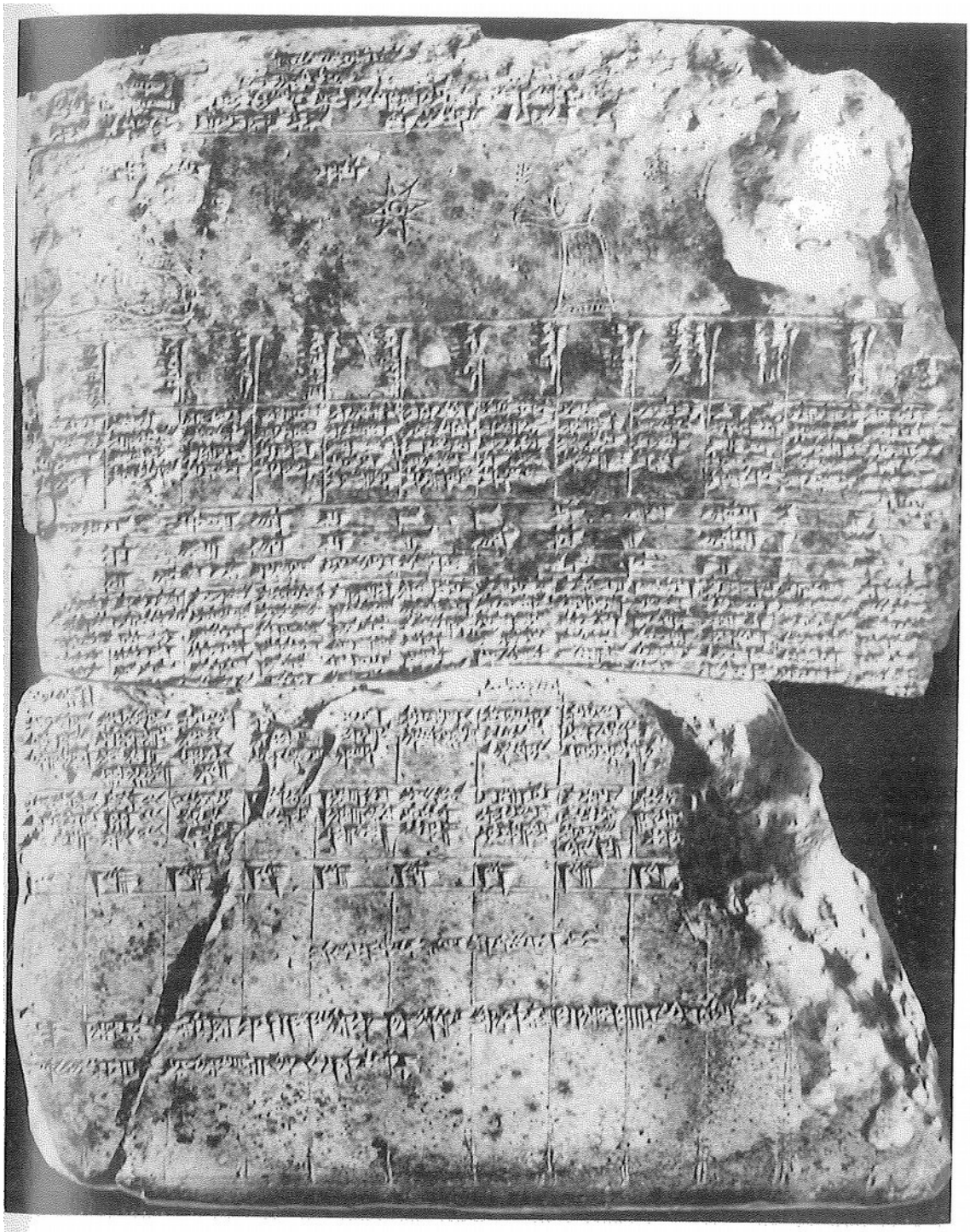
440 Composite images and obverse and reverse of VAT 7847 taken from Weidner's plates (Weidner 1967).

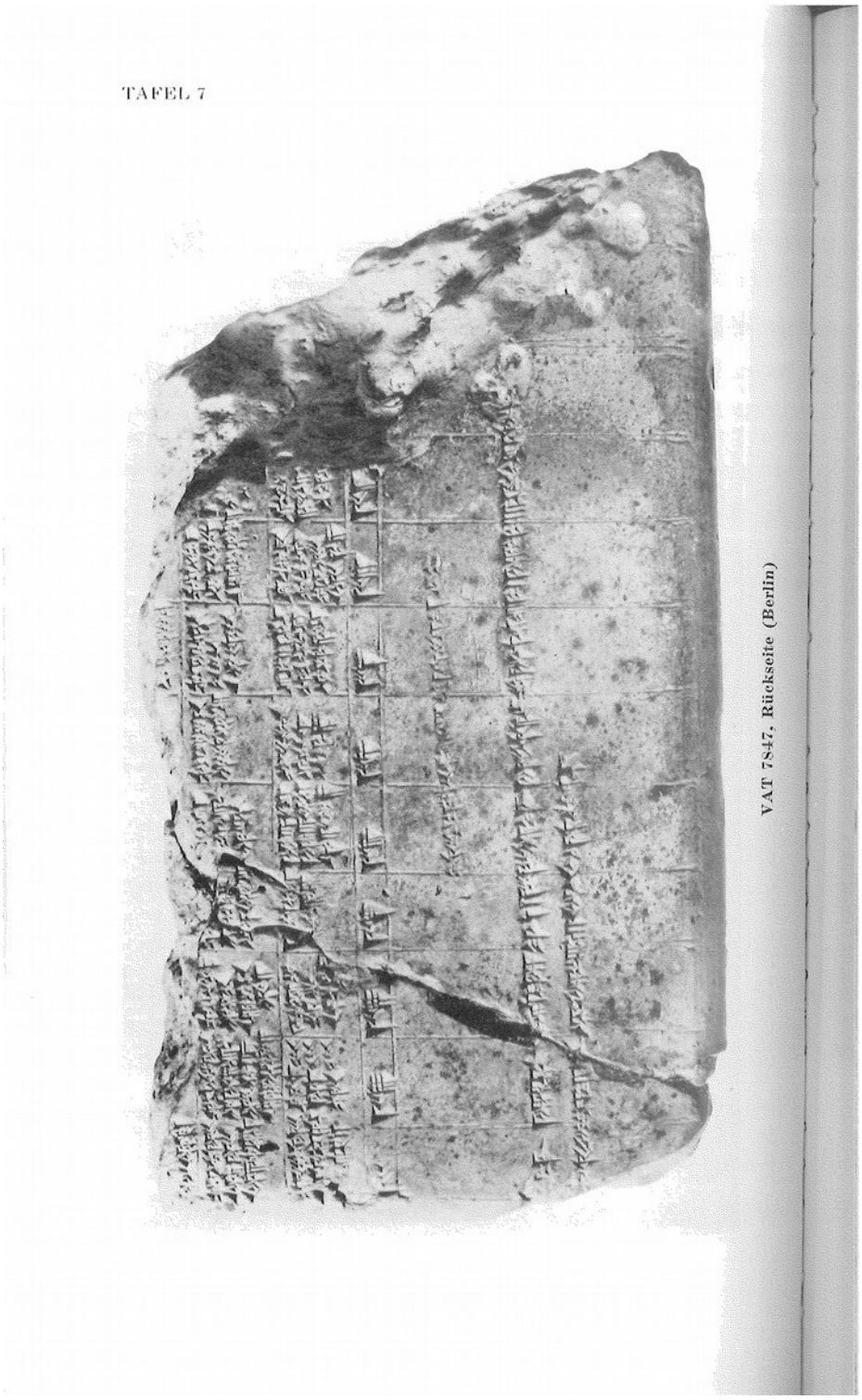


VAT 7847 Obverse:

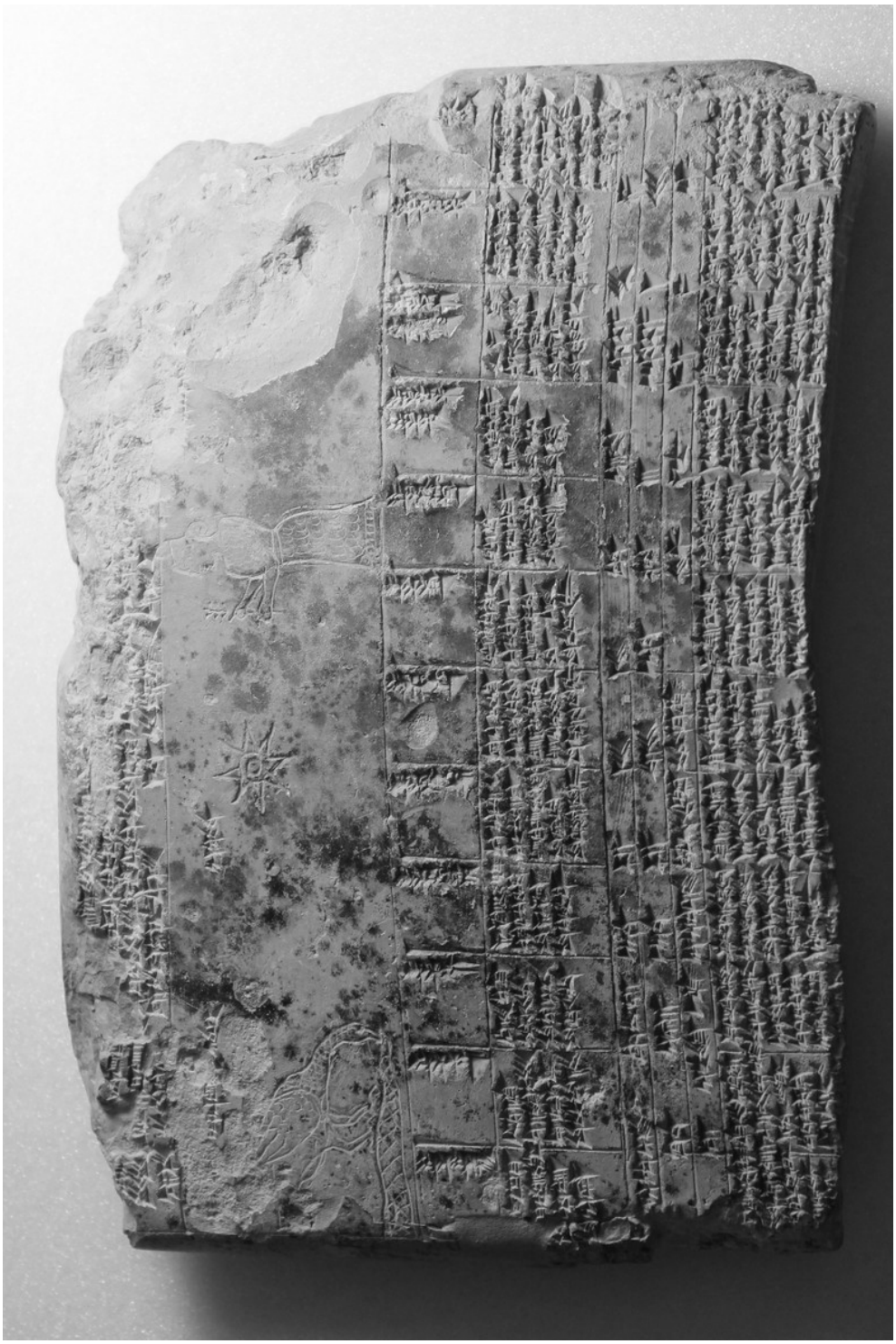
TAFEL 5

VAT 7847. Vorderseite (Berlin)

VAT 7847 Reverse:



AO 6448 Reverse



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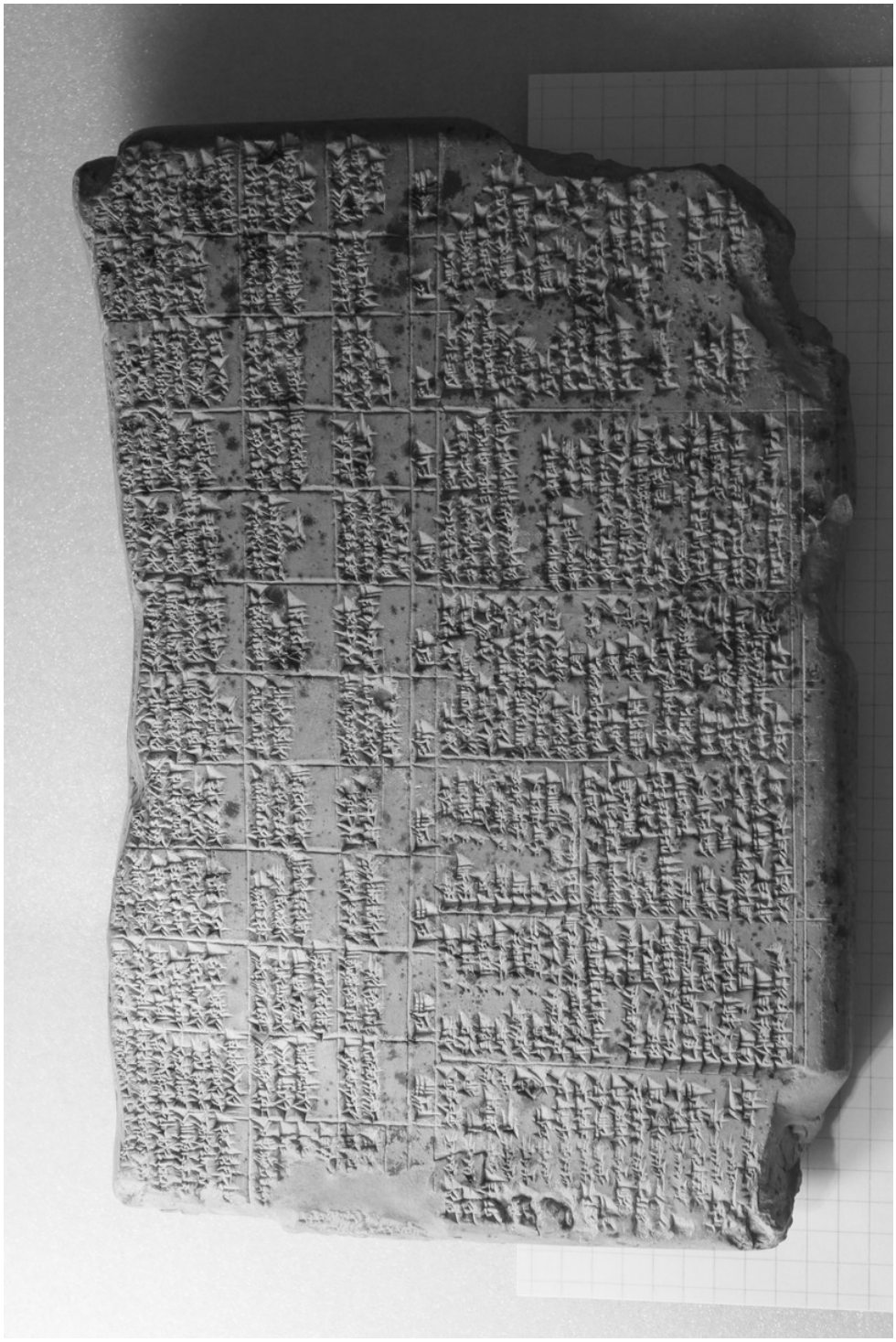

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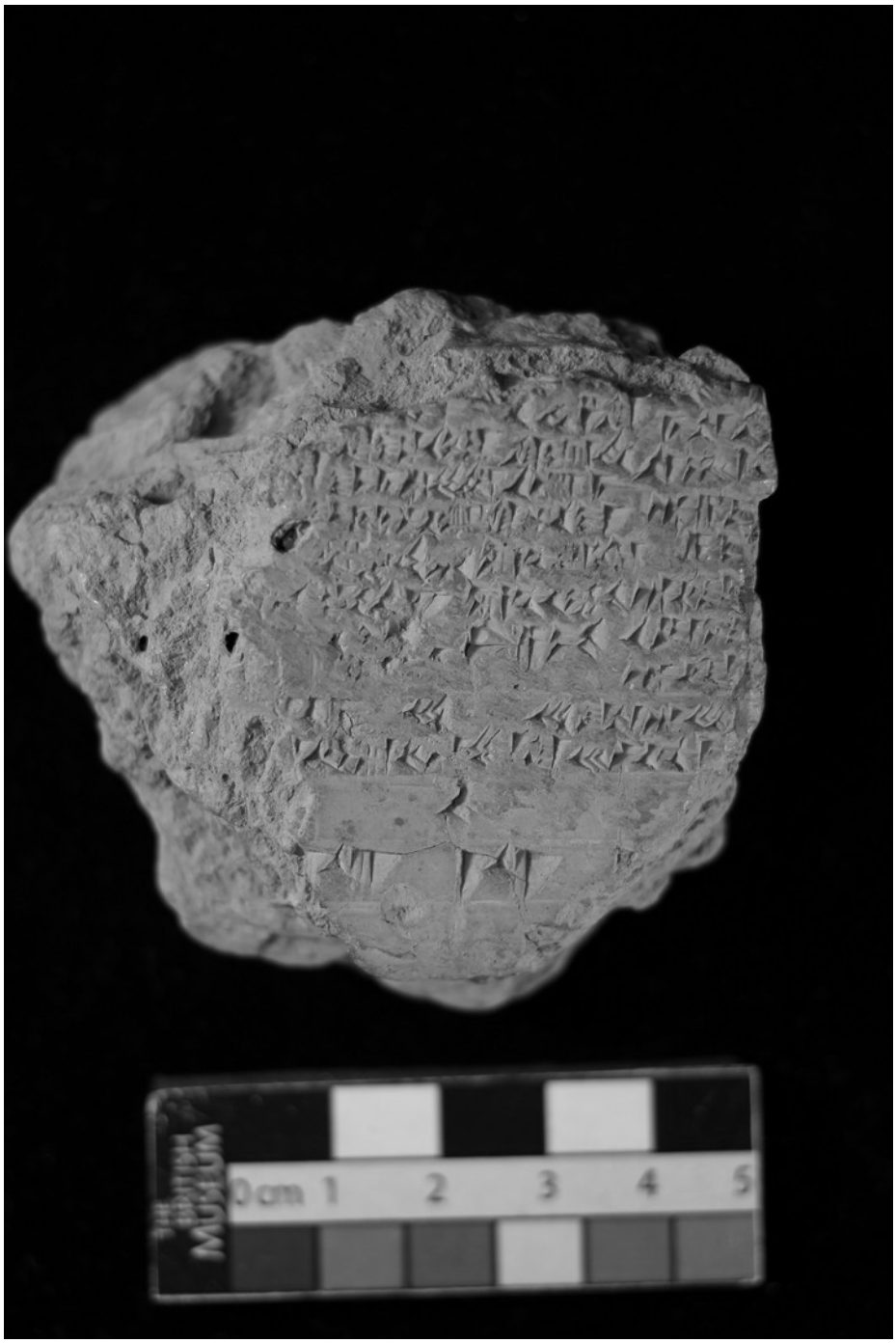

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Obverse:

Reverse:

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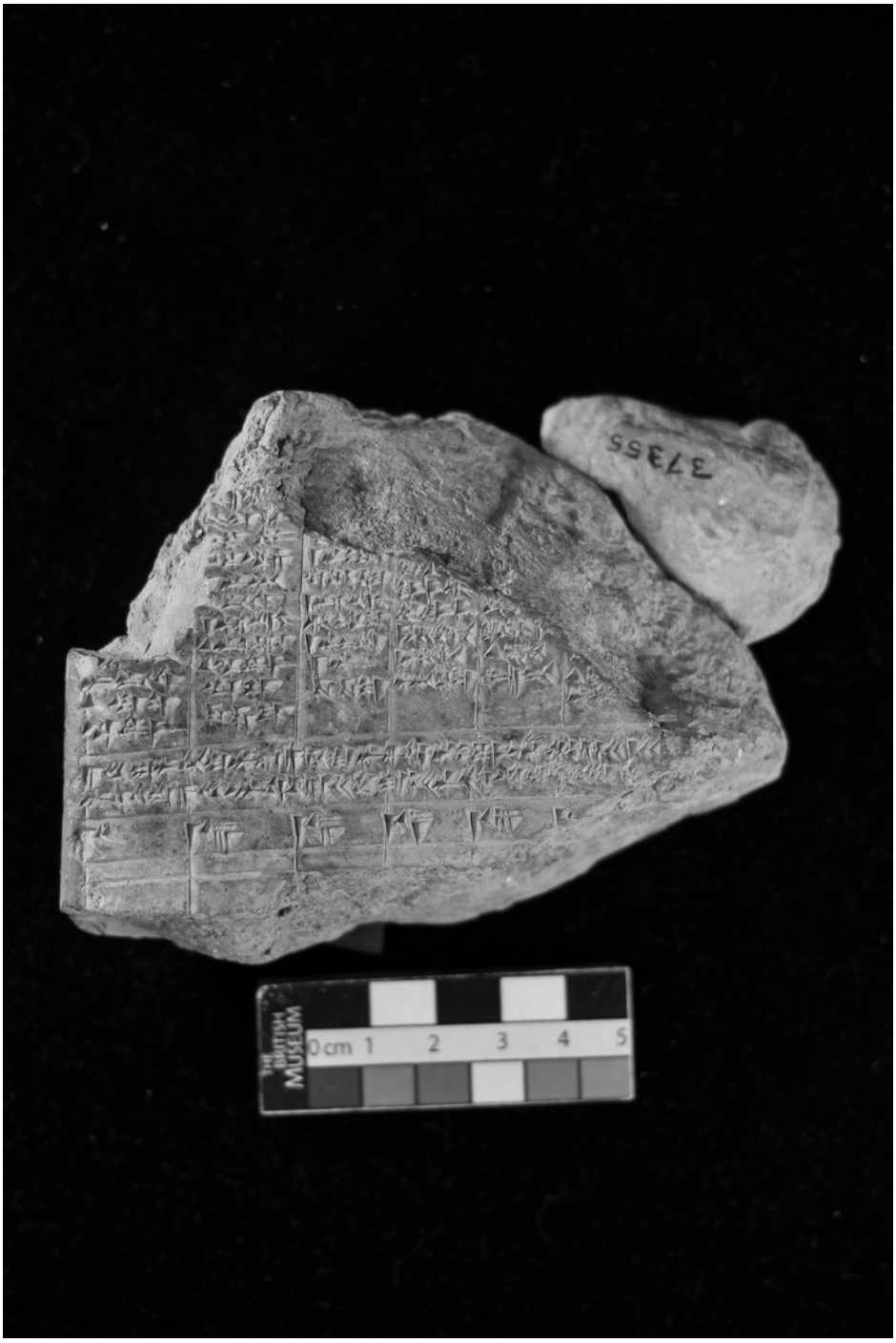

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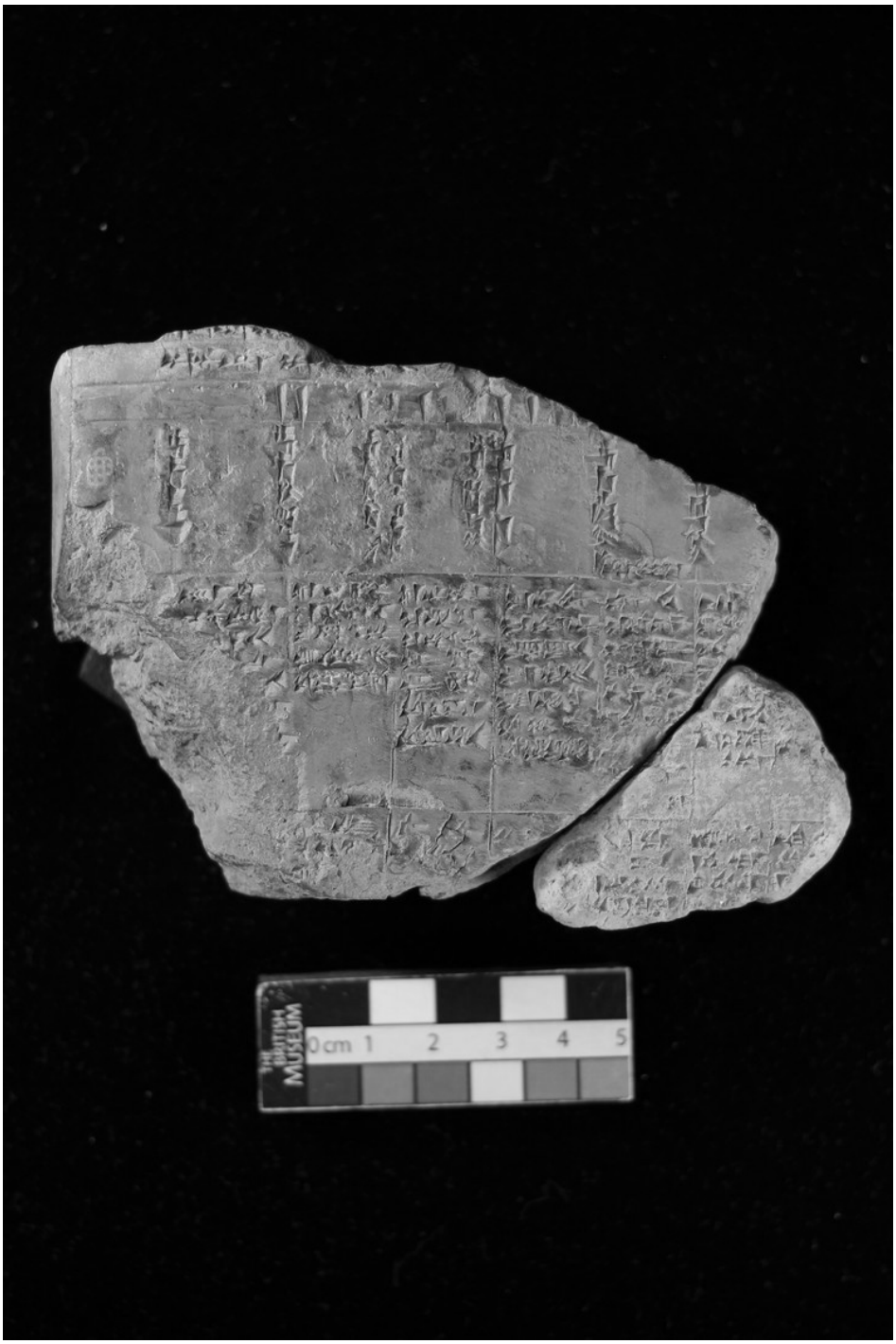

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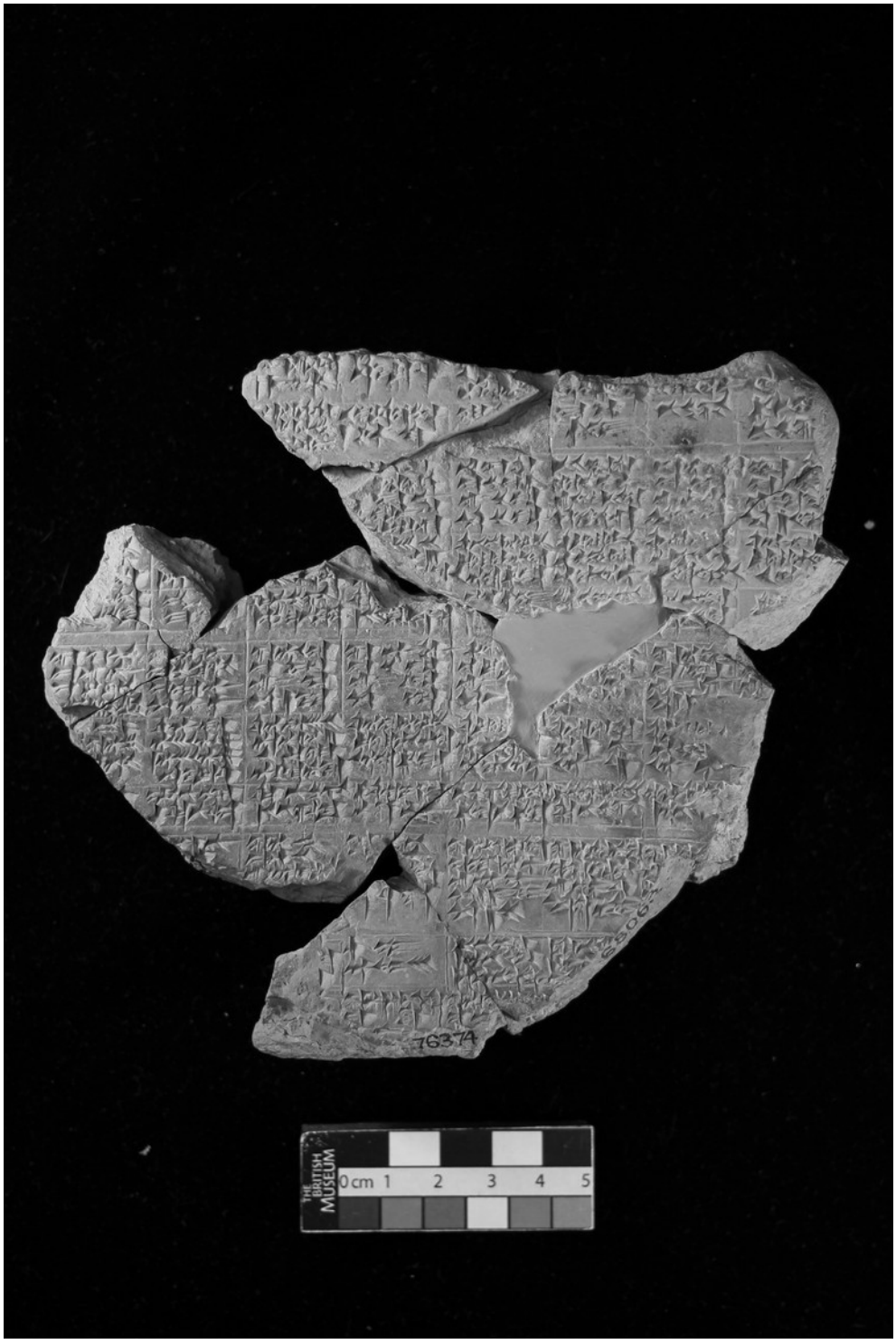

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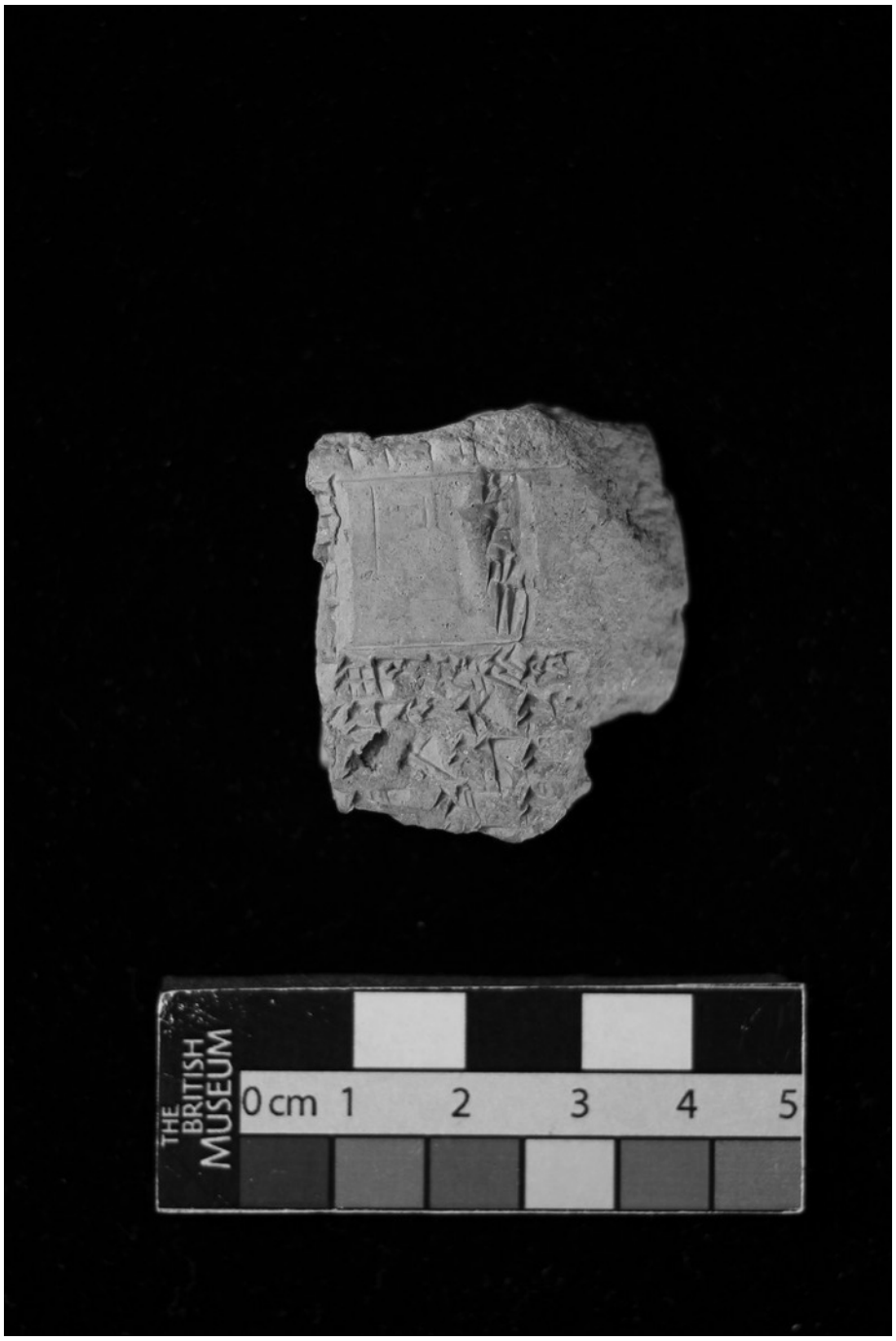

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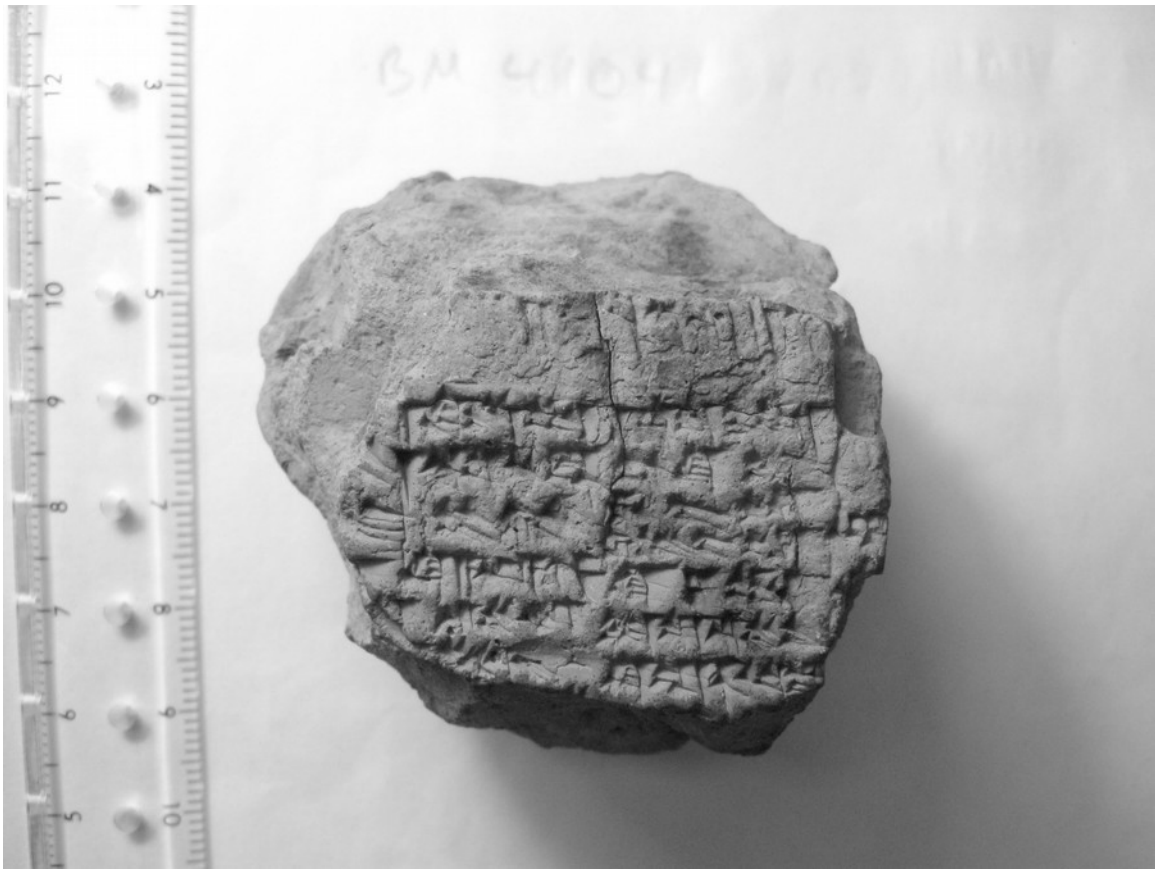

441 Photography credit to Jeanette Fincke.

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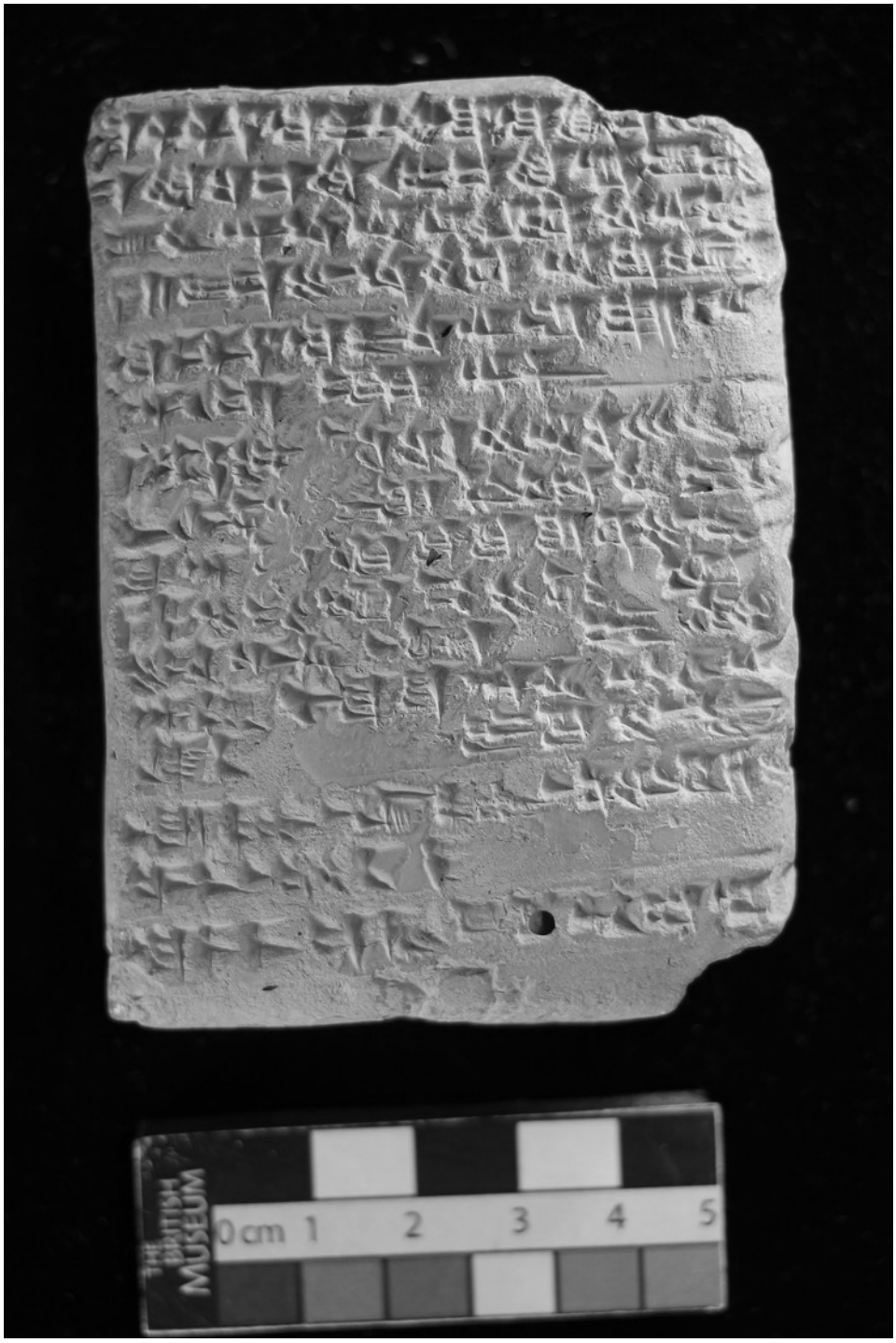

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