

Changes to the first edition are noted in yellow on the following pages. The Addendum is entirely new material.

Preface

Mesopotamian Cosmic Geography represents the main part of my first decade of study as an Assyriologist. The book began its life as a Ph.D. thesis of the same name under the supervision of Professor W. G. Lambert of the University of Birmingham. After completion of the Ph.D. thesis in 1986, I continued to collect materials relevant to the study of Mesopotamian views of cosmography with the intention of revising the thesis as a book in the early 1990s. The book *Mesopotamian Cosmic Geography* presents this revised, more mature examination of the topic.

Wayne Horowitz
Kfar Adumim
February, 1994

Preface to the Second Printing

In the introduction to the first edition of *Mesopotamian Cosmic Geography* (MCG), I opened with the sentence: “This study collects and presents the available evidence in Sumerian and Akkadian texts for Mesopotamian ideas of the physical structure of the universe and its constituent parts.” Today, in 2010, this statement is no longer correct, because the field of Assyriology has moved on over the last 15 years, with new texts being discovered, new editions of texts published, and new interpretations offered. Just to point out a few examples:

- Chapter 7 on the “Geography of the Sky” was published too early to make full use of H. Hunger and D. Pingree’s edition of the Mul-Apin series, their encyclopedic work *Astral Sciences in Mesopotamia*,¹ and my own continuing work on the “Astrolabe” group of texts.
- Likewise, a number of new editions and studies of *The Etana Epic* have appeared, and they could be integrated into chapter 3.²

¹ Hunger and Pingree 1989 and 1999. For bibliographical references, see p. 417 below.

² See the discussion below, pp. 411–12.

- The same is true of A. George's splendid edition of *The Gilgamesh Epic* (George 2003) for chapter 5.³

A full revision of the book would be a most time-consuming endeavor, particularly since my project to collect evidence on cosmic geography in cuneiform texts in a scientific and comprehensive manner, which began with my Ph.D. studies under Professor Lambert in Birmingham in 1981, came to an end with the submission of *Mesopotamian Cosmic Geography* for publication in 1994. Fortunately, a new updated version of *Mesopotamian Cosmic Geography* is not yet warranted. The new information that has become available does not change the overall picture of the cosmos that I was able to present in *Mesopotamian Cosmic Geography* on the basis of what was available up to and including the early 1990s. Thus, the findings and conclusions presented in the book remain up to date, even if some of the supporting evidence could be shored up with new data. With these limitations in mind, I welcome the invitation of Eisenbrauns to make some revisions for the book's second printing.

Below, I have taken this opportunity to make some corrections that have been offered by my colleagues in reviews and less formal settings and to add here and there some new bibliography, as well as a few tidbits of information that have come my way. A small number of corrections have been incorporated into the main body of the book. The most significant of these is a new corrected reading for line 5' of the obverse of the World Map on pp. 22–23, which has also necessitated a revision to the study of the text on MCG 34–35.⁴ Beyond this, for the convenience of future scholars who would have to deal with competing sets of page numbers for two versions of what will still essentially be the same book, I have decided to add the new material in list form, chapter by chapter, as an addendum at the end of the original manuscript. This addendum includes references going back to 1994, the date of my submission of MCG to Eisenbrauns for publication, but it is neither comprehensive nor exhaustive.

Finally, let me again thank Professor Lambert for his supervision of my Ph.D. thesis, now (what is for me) nearly half a lifetime ago. It is only now, due to having Ph.D. students of my own, that I can truly appreciate the time and care he gave to me, which I can only reciprocate by offering the same to my students, Professor Lambert's grandstudents, if you like. As a small token of my appreciation, I dedicate this revised printing of *Mesopotamian Cosmic Geography* to him.

Wayne Horowitz
Kfar Adumim
2010

³ There also have been a number of articles relating to the topic of cosmic geography, such as Wiggermann 1996 and Steinkeller 2005 (see the bibliography to the addenda, pp. 416ff.

⁴ See George 1996: 388 n. 59.

13. TIN.TIR ^{ki}	Babylon
14. ^{id} mar-ra-tum	ocean
15. [(^{id})mar-ra-tum]	[ocean]
16. [(^{id})m]ar-ra-tum	[o]cean
17. mar-r[a-tum]	oce[an]
18. BÀD.GU.LA †6 ¹ bēru ina bi-rit a-šar ^d šamaš la innammaru (nu.igi.lá)	Great Wall 6 leagues in between where the Sun is not seen
19. na-gu*-ú* 6 bēru ina bi-rit	Region 6 leagues in between
20. [na-gu]-†ú ¹ [(...)]	[Regio]n [(...)]
21. [na]-gu-ú [(...)]	[Re]gion [(...)]
22. na-gu-ú †8 ¹ bēru ina bi-rit	Region 8 leagues in between
23–25. No Inscription	
* Signs visible on early photographs	

The Text on the Obverse

- 1'.] x x x x [.....
 2'.] x ālānu^{mes} ab-t[u-tu
 3'. [... tam-tum rapaštum^{tu}]^m šá i-bar-ru-ú ^d†marduk ti-tú¹ri qé-r[eb-ša]
 4'. [... b]i u ilānu^{mes} ab-tu-t[u] šá ina lib-bi tam-tim ú-še-[ši-bu]
 5'. [... x]-x-†šú¹ iz-za-zu ba-aš-mu muš^hu^ššu(muš.ḥuš)
 ušumgallu(ušumgal) an-zu-ú girt[ablullû](gír.t[ab.lú.ùlu]^u)³
 6'. [x x a]r-mu ša-bi-tum ap-sa-su-ú [n]im-ru ki-sa-r[i-ku]
 7'. [x x n]ēšu(ur.maḥ) barbaru(ur.bar.ra) lulīmu(lu.lim) ù bu-ú-[šu]
 8'. [pa-gu]-†ú¹ pa-gi-tum turāḥu(dàra) lu-ur-mu šu-ra-nu ḥur-ba-bi-li
 9'. [x x x] ú-ma-mu šá ina muḥḥi tam-tim gal-l[a-t]im ^dmarduk
 ib-nu-šu-n[u-ti]

³ The reading *girtablullû* for gir.tab.lú.ùlu^u is suggested by the loanword *lullû* from Sumerian lú.ùlu (see CAD L 242). There are no phonetic writings of the word, to confirm this reading, or *girtablilu* as proposed in AHW 291.

- 10'. [x x m]¹ut-napištim(zī)^{tim} šarru-kin u nūr(zalag)^{-d}[d]a-gan šar bur-šā-an²-ḥa¹-a[n-da]
 11'. [x x k]a-ap-pi iššuriš(mušen)^{riš}-ma man-ma qé-reb-ši-na ul ¹i¹-[du-ú]

Translation

- 1'.] [.....
 2'.] . the rui[ned] cities [.....]
 3'. [... the vas|t [Sea] which Marduk sees. The bridge in[side her²]
 4'. [...] . and the ruine[d] gods which he set[tl]ed inside the Sea
 5'. [...] .. are present; the viper, sea-serpent, great dragon, anzu-bird, and scorpi[on-man]
 6'. [... moun]tain goat, gazelle, zebu, [p]anther, bull-m[an]
 7'. [... l]ion, wolf, red-deer, and hye[na],
 8'. [monk]ey, female-monkey,⁴ ibex, ostrich, cat, chameleon,
 9'. [...] beasts which Marduk created on top of the res[tl]ess Sea,
 10'. [... U]tnapištim, Sargon, and Nur-[D]agan the King of Buršaha[nda],
 11'. [... w]ings like a bird, which/whom no one can com[prehend.]

The Text on the Reverse

- 1'.] x [.....
 2'. tab²]-ra²-[ti²
 3'. tam-t]u₄ ra-bi-tú [.....
 4'. [maḥ-ru² na-gu-ú² ina e-re-b]i-šú tal-l[a-ku 7 bēru ...

 5'. [a-na šanú^ú na-gu-ú] ¹a¹-šar tal-la-ku 7 bē[ru ...

 6'. [...] x x x šap-[liš/lat ...

 7'. [a-na šalšu]¹šú¹ na-gu!(text DU)-ú a-šar tal-la-ku 7 bēr[u ...
 8'. [iṣ-ṣu]-ru mut-tap-ri-ši la ú-šal-l[a-am uruḥ-šu]

 9'. [a-na re]-bi-i na-gu-ú a-šar tal-la-ku 7 bē[ru ...
 10'. [x x x]-du ik-bi-ru ma-la par-sik-tum 20 ubān[u](šu.s[i]) [...

⁴ For *pagû* and *pagîtu* as male and female monkeys, see Urra 14 118-19: ugu. dul.bi = *pa-gu-ú*, ^{munus}ugu.dul.bi = *pa-gi-ti* (MSL 8/2 16).

Marduk defeats in *Enuma Elish*. In Ee VI 151–54, Marduk is praised by the name Asarluḫi-Namtila and hailed as the savior of these gods:¹⁸

^dasal-lú-ḫi ^dnam-ti-la šá-niš im-bu-u ilu muš-neš-šu
 šá ki-ma bi-nu-ti-šú-ma ik-ši-ru ka-lu ilāni ab-tu-ti
 be-lum šá ina šip-ti-šu el-le-ti ú-bal-li-tu ilāni ^{meš} mi-tu-ti
 mu-ab-bit eg-ru-ti za-²-i-ri i ni-¹u-da¹

Ee VI 151–54

Asarluḫi-Namtila, secondly they named him, the healing god,
 who mended all the ruined gods in accordance with its (the name’s)
 structure.

The Lord, who gave life to the dead gods by his holy incantation,
 who destroys wicked enemies, let us praise (him).

In an inscription of Sennacherib listing elements of a relief depicting the battle in which Assur replaces Marduk, creatures of Tiamat are said to be inside the goddess, just as the ‘ruined gods’ are inside the sea in obv. 4’:

[ti]-amat a-di nab-nit qer-bi-šú
 Meissner-Rost Senn. pl. 16 edge 2 (OIP 2 142 b 2)
 (cf. OIP 2 140:10–12)

[Ti]amat together with the creatures inside her.

An analogous tradition is preserved in *The Babyloniaca of Berossus*. Here, creatures are placed inside primeval water, which is later identified with the waters of the primeval Sea-goddess:

They say there was a time when everything was darkness and water,
 within which monstrous beings lived, which were born alive hav-
 ing strange forms.

F. Jacoby, FGrH 3/1 p. 370(6); (Burstein Berossus 14 2.1)

Later, Marduk defeats the sea and splits it in half. Thus the sea in Berossus is to be identified with Tiamat, whom Marduk divides into two parts in Ee IV 137–38.

Line three mentions Marduk and a bridge. This line can be compared with Ee VII 74–75, where Marduk as ^dsirsir crosses the sea during battle as if crossing a bridge:

šá ti-amat rapašta^{ta} i-ti-ib-bi-ru uz-zu-uš-šú
 ki-i ti-tur-ri i-ti-it-ti-qu a-šar šá-áš-me-šá

Ee VII 74–75

who crossed the broad sea in his fury,
 passed over its place of battle as if on a bridge.

Lines 5–9 list animals, beasts, and fantastic creatures. First are the fantastic creatures: the viper, sea-serpent, great dragon, anzu-bird, and scorpion-man.

¹⁸ Cf. Erra IIIc 32: *kī šá ila ab!(=*BA)-ta...*

The first three, the *bašmu*, *mušhuššu*, and *ušumgallu* are sea creatures. Angimdimma 139 (Cooper Angim 80) compares a mace with the *mušhuššu* of the sea (muš.huš a.ab.ba = *mušhuš tâmtim*), and the Labbu myth speaks of a 60-league-long fantastic *bašmu* that was created in the sea:

i-na tâmti (a.ab.ba) *ib-ba-ni* ^{muš}*ba*-[aš-mu]

1 šu-ši *bēru* (danna) *šá-kin ú-rak*-[šu]

KAR 6 21'-22' (cf. CT 13 33:5-12)¹⁹

In the sea the vi[per] was created.

[His] length was set at 60 leagues.

The *ušumgallu* also can be associated with the sea by way of Urra XIV: 6-8 (MSL VIII/2 7), where both Sumerian muš.ušum.gal and muš.a.ab.ba 'Snake of the Sea' are equated with Akkadian *bašmu*.

The remaining animals are all to be associated with the dry land areas on the map. These include two fantastic beings, the *anzû* 'fabulous eagle or winged horse'²⁰ and *girtablullû* 'scorpion-man', followed by the more mundane *armu* 'gazelle', *šabitu* 'gazelle', *apsasû* 'zebu, water buffalo',²¹ *nimru* 'panther', *kusarikku* 'bull-man', *nēšu* 'lion', *barbaru* 'wolf', *lulīmu* 'red-deer', *būšu* 'hyena', *pagû* 'monkey', *pagītu* 'female-monkey', *turāhu* 'ibex', *lurmu* 'ostrich', *šurānu* 'cat', and *hurbabillu* 'chameleon'.

The statement that Marduk creates these animals 'on top of the sea' may be compared with the account of the creation of animals in *The Bilingual Account of the Creation of the World by Marduk* (CT 13 35-37 + dupl.). In this text, Marduk creates dry land on top of the sea by building a (reed-)raft (^g*d**iri* = *amu*) and pouring out dirt (CT 13 36:17-18). Then, in lines 20-22, Marduk creates mankind and the animals on dry land on top of the raft, which floats on the sea. Thus, in terms of the map, the two groups of animals may represent the sea-animals that inhabit the *marratu* and the animals that live above the sea on the continent and the *nagû*. On the reverse of the tablet (rev. 21'-23'), horned cattle run about on the seventh *nagû*.

With the exception of the cat, all of the beings listed in lines 5'-8' were not common in Mesopotamia cities, although they were familiar to Mesopotamians from depictions and statues, literary works, and military campaigns in distant lands. For example, representations of the *mušhuššu*, *apsasû*, *anzû*, *kusarikku*, lion, ape, and monkey adorned the public buildings of Babylonia and Assyria;²² Assyrian kings brought home hyenas, panthers, red-deer, lions,

¹⁹ For the Labbu myth, see T. Lewis, JAOS 116 (1996) 28-47.

²⁰ For the *anzû* as winged horses in first-millennium materials, note KAR 307:25 (see SAA 3 100), where horses hitched to a chariot are mystically identified with *anzû*, and AfO 19 107:21, where the *anzû*-star is identified with the "Horse-star." Cf. A. George, RA 85 157 n. 122.

²¹ In the third millennium, at least, the *apsasû* (Sumerian áb.za.za) is a real animal that was imported to Mesopotamia from afar (Cooper Curse of Agade 50:21) and is probably to be identified with the Indian water buffalo (see R. M. Boehmer ZA 64 11-13) or the Indian zebu-bull. First-millennium *apsasû*, on the other hand, are mythological composite creatures that are often represented in palace reliefs (see CAD A/2 193-94).

9. KLM *áš-bat ina lib-bi ištēt^{et} [x x x]*
 10. KL *ʿagâ(aga)¹ ru-uš-šu-na-at ʿkal(dù)¹ [zī]mē(mùš)-[šá x x x]*
 11. KLM *g^{iš}kussû(gu.za) nadât(šub)-ma AN x [(x) i]t-tak-ba-**su***
 12. KLM *ina šap-la g^{iš}kussî la-b[e-e i-r]ab-[bi-šu]*
 13. KM *at-be-ma a-na-ku la-be-ʿe¹ [. . .*
 14. KM *ag-gal-tam-ma ap-ta-ru-ud . . .*
 15. KM *erû^{mušen} ana šá-šu-ma ana ^de-ta-na [iz-zak-kar-šu]*
 16. KM *ib-ri šu-pa-a x [. . .*
 17. KM *al-ka lu-uš-ši-ka-ma a-na šamê^e [. . .*
 18. KM *ina muḥḥi(ugu) irti(gaba)-ia šu-kun [irat-ka]*
 19. M *ina muḥḥi na-aš kap-pi-ia šu-kun [kap-pa-ka]*
 20. M *ina muḥḥi i-dī-ia šu-kun [i-da-ka]*
 21. M *ina muḥḥi irti-šu iš-ta-kan [irat-su]*
 22. M *ina muḥḥi na-aš kap-pi-šu iš-ta-kan ka[p-pa-šu]*
 23. M *ina muḥḥi i-dī-šu iš-ta-kan i-d[i-šu]*
 24. M *ú-dan-nin-ma ir-ta-kas bi-lat-su*
 25. M *ištēn^{en} bēru(danna) ú-šá-q[í-šú-m]a*
 26. M *erû^{mušen} a-na šá-šu-ma a-na ^de-ta-na iz-zak-k[ar-š]ú*
 27. M *du-gul ib-ri ma-a-tu ki-i i-ba-á[š]-ši*
 28. M *šu-ub-bi tam-tum i-da-te-šá bit-[r]i*
 29. M *ma-tum-me-e li-mid-da šadâ^a*
 30. M *tam-tum i-tu-ra a-na me-e-me-e-ma*
 31. M *šanâ^a bēru ú-šá-ʿqí¹-šú-ma*
 32. M *erû^{mušen} a-na šá-šu-ma a-na ^de-ta-na iz-z[ak]-kar*
 33. M *du-gul ib-ri ma-a-tum ki-i i-ba-áš-ši*
 34. MN *ma-a-tum me-e-me¹-[e]-ma*
 35. MN *šal-šá bēru ú-šá-qí-šú-ma*
 36. MN *erû^{mušen} a-na šá-šu-ma a-na ^de-ta-na iz-[zak-k]ar*
 37. MN *du-gul ib-ri ma-a-tu ki-i i-b[a-áš-š]i*
 38. MN *tam-tum i-tu-ra a-na i-ki šá^{lú}nukar[ibbi(nu,ki [ri₆])]*
 39. MN *iš-tu e-lu-ú a-na šamê^e šá^{dʿa}ʿ¹-[nim]*
 40. MN *ina bāb^da-nim ^den-líl u ^dé-a i-ba-ʿ-[ú]*
 41. MN *[e]rû^{mušen} ^de-t[a-n]a a-ḥa-meš uš-[ke-nu]*
 42. MN *ina bāb^dsī[n(30) ^dšamaš^dadad u ^dištar:]*
 43. MN *ʿerû^{lmušen} ^de-ta-n[a a-ḥa-meš uš-ke-nu]*
 44. MN *e-mur [bīta ap-ti la-aš-šu] ʿi-sa-kip¹ g^{iš}[dalta]*

Gap of 10–12 lines

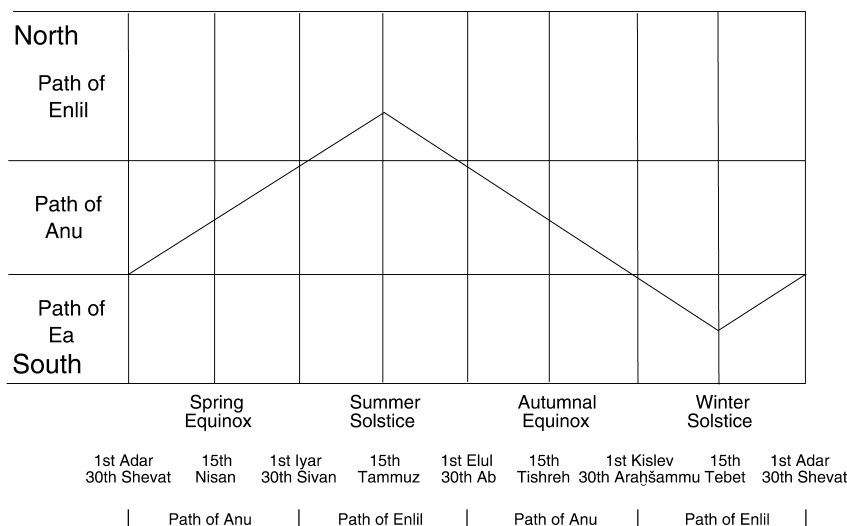
7. [ultu UD.1]^kam šá itušaklīmi adi u₄ 30^{kam} ša itušabāṭi dšamaš ina ḥarrān
8. šu-ut^{dé-a} illak-ma kuššu(en.te.na)

Mul-Apin II Gap A 1-7 (Hunger Pingree Mul-Apin 88-89)

1. From the 1st of Adar to the 30th of Iyar, the Sun travels in the Path of Anu; breeze and warm weat[her].
3. From the 1st of Sivan to the 30th of Ab, the Sun travels in the Path of Enlil; harvest and heat.
5. [Fr]om the 1st of Elul to the 30th of Arahsamnu, the Sun travels in the Path of Anu; breeze and warm weather.
7. [From the 1s]t of Kislev to the 30th of Shevat, the Sun travels in the Path of Ea; cold weather.

In the passage, the Sun is said to cross from one stellar path to another every 90 days. The equinoxes and solstices fall midway through these periods, on the 45th day. The Sun travels in the Path of Anu for 45 days before and after the equinoxes; the Sun travels in the Path of Enlil for 45 days before and after the summer solstice; and the Sun travels in the Path of Ea for 45 days before and after the winter solstice:

The Movement of the Sun according to Mul-Apin



The progression of the Sun through the stellar-paths Anu-Enlil-Anu-Ea-Anu is the same as that of the Moon in Mul-Apin I Section 8 (see p. 170). Thus, the description of the movement of the Sun in *Mul-Apin* confirms that the Path of Enlil and Ea are northern and southern bands of the sky and that the Path of Anu is located along the celestial equator. The placement of the Sun in the

... *man-ma qé-reb-ši-na ul* ^r*i*¹-[*du-ú*] World Map 11'
 ... *qé-reb-ši-na man-ma la* ^r*i*¹-[*du-ú*] World Map rev. 27'

Thus, AO 6478 1', when complete, may have explained that *ziqpu*-stars rose and set into or beyond the cosmic ocean amidst *nagû*.

The second section of AO 6478, lines 2'-4', serves as an introduction for the astronomical information that follows:

bi-rit kakkabāni^{mes} *ziq-pi ša* ***i-na*** *ḥarrān šu-ut*^d*en-lil i-na qereb*
 š[*amê*^e]
mihrit(*igi*)^{it} *irti*(*gaba*) *šá nāšir*(*ûru*)^{ir} *šamê*^e *izazzu*^{mes}*zu-ma*
mūša(*gi*₆) *niphī*(*sar*)^{bi} *ù r*[*ibi*(*šú*)]⁵¹
ša kakkabāni^{mes} *i-na lib-bi-šu-nu i*[*m-ma-ru*]

AO 6478 2'-4'

The (distance) between culminating-stars that stand in the Path of Enlil in the middle of the sky opposite the one who observes the sky, and the rising and s[etting] of the stars that he sees in their midst at night.

Almost identical passages introduce *ziqpu*-star lists in Mul-Apin I iv 1-3, 7-9, as well as follow a list of *ziqpu*-stars in the *ziqpu*-star text BM 38369+38694 (W. Horowitz, JCS 46 92:23-93:24).

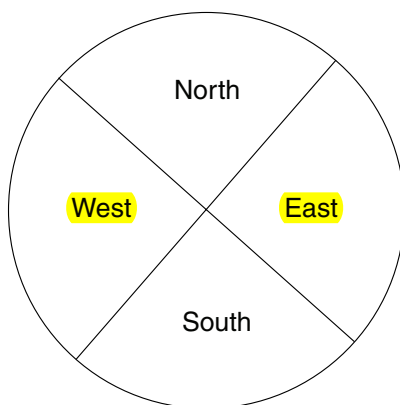
The third section of AO 6478 (obv. 5'-rev. 24) lists the *ziqpu*-stars of the Path of Enlil and the distances between the stars. The final section, AO 6478 rev. 24-32, is only partially preserved. This section opens with sum-totals of the measurements offered in the previous section but breaks off before the end of the tablet.

Stellar Distances in AO 6478. The chart below presents the distance between *ziqpu*-stars in AO 6478 in units of *ma.na*, *UŠ ina qaqqari*, and *bēru ina šamê*. In all cases, the ratio of *ma.na* to *UŠ ina qaqqari* is 1 : 6, and the ratio of *UŠ ina qaqqari* to *bēru ina šamê* is 1 : 1,800 (see table, p. 184).

“*UŠ ina qaqqari*” and “*bēru ina šamê*.” Units of *UŠ* and *bēru* are used to measure time, linear distance, and degrees of arc. In Babylonian geometry, 30 *UŠ* = 1 *bēru*; and 12 *bēru* comprise a full circle of 360°. Thus each *bēru* represents 30° arc and each *UŠ* represents 1° arc:

circle = 360°
bēru = 30°
UŠ = 1°

⁵¹ The surviving trace allows for readings *r*[*i*: ... or *šú*-[*bi*].



Topographic Features

In addition to the position of the sun, the winds, and the stars, topographic features also seem to have influenced Mesopotamian conceptions of the compass points. The name of the east wind, ‘mountain wind’, points to the role of the mountains in Mesopotamian conceptions of ‘east’. Similarly, identifications of the Persian Gulf and Mediterranean as seas of sunrise and sunset, in passages such as the following excerpt from a Sennacherib inscription, suggest that these bodies of water influenced Mesopotamian views of “east” and “west”:¹²

ul-tu tâmti (a.ab.ba) *e-li-ni-ti ša šá-lam* ^{dšamši} ^{ši} *a-di tam-tim*
šap-li-ti ša ši-it ^{dšamši} ^{ši} *gim-ri šal-mat qaqqadi* (SAG.DU) *ú-šak-niš*
še-pu-ú-a

OIP 2 163 i 13-15 (OIP 2 23)

From the Upper Sea of the setting sun to the Lower Sea of the rising sun I made all of the human race submit at my feet.

The head of the Persian Gulf is in actuality southeast of Babylonia and Assyria, rather than due east, providing further indication that ‘east’ includes a range of 90° from northeast to southeast. The Mediterranean coast is reached by traveling north and then west from Babylonia but lies due west of Assyria.

Examination of BagM Beih. 2 no. 98

The Square

When complete, the square almost certainly contained four triangles labeled north, south, east, and west winds, with two of the spaces between the triangles labeled sunrise and sunset:

¹² For additional examples, see AOAT 6 345-47.

Addenda to the First Edition

In these addenda to the first edition, I have retained the citation format and list of abbreviations of the first printing with new abbreviations as given in CAD T and, of course, *MCG* stands for *Mesopotamian Cosmic Geography* itself. A bibliography of new sources that do not appear in the CAD abbreviations is given below.

Chapter 1: The Levels of the Universe

- p. 14 For Jasper in the sky, cf. K. 3123: 8': ^{na}aš-pu-ú šá U₄SAKAR šá ŠÀ^{d30} ^{dPA}šá ŠÀ ^{dUTU}, the jasper of the crescent moon which is in the Moon, Nabu who is in the Sun (ACh Supp. 2 19). For this, cf. KAR 307 rev. 5–6: The inside of the S[un is Ma]rduki. The inside of the Moon is Nabu. Inside the Sun there is a viper . . . (SAA 3 101). For a connection between K. 250+ and K. 3123, see Brown, Fermor, and Walker 1999: 139 n. 35: “K 3123 parallels K 250+ in parts.”¹

Chapter 2: “The Babylonian Map of the World”

- pp. 23–24 CAD Š/1 226 11f. offers a new understanding of rev. 8': [ašar iššū]ru muttapriši la ú-šal-la-[mu . . .] where the winged bird does not hatch [eggs].
- p. 27 For maps and plans, now add Wiggermann 1996: 208–9 with a discussion of both the “Babylonian Map of the World” and what Wiggermann takes to be a world map on a tablet from Fara that illustrates the concept of “The Four Regions” (a.n.u.b.d.a.lím m u. ba = *kibrātum arba²um*).
- p. 33 The article listed as forthcoming in n. 15 is now Horowitz 1997.

Chapter 3: The Flights of Etana and the Eagle into the Heavens

Since the publication of *MCG*, two new editions of *The Etana Epic* have been published in addition to the older editions of Langdon, Kinnier-Wilson, and Saporetta that were used for *MCG: Das Etana-Epos* by M. Haul in 2000,

¹ K. 250+ is the main example of *The Great Star List*, for which see now Koch-Westenholz 1995: 187–205. AO 8196, which lists the three heavens, is related to this text (see *MCG* 7).

and that of J. R. Novotny as SAA Cuneiform Texts 2 in 2001. These editions do not add any new source material, so the end of the epic still remains unknown, and the controversy regarding the number of times that Etana flew up into heaven remains unresolved. Neither of the new editions nor the recent translation of the epic by S. Dalley in *The Context of Scripture* 1:456–57 accept the reconstruction of Etana’s flight to heaven that is advocated in *MCG* 45–50. Foster (1993: 438) agrees with the interpretation given in *MCG*. I myself continue to believe that the story, when complete, told that Etana flew up into the heavens only once, arriving at The Heaven of Anu three leagues above the surface in the first part of his flight (*MCG* 50–53) and then continuing upward an additional three leagues into open space above The Heaven of Anu (*MCG* 56–57: 30–43). From here, descent begins, first three leagues (down to the level of The Heaven of Anu), and then onward to a height of only three cubits above the earth’s surface (*MCG* 56–57: 44–53).² Only time and more tablets will solve this impasse.

p. 58 n. 20 For cylinder seals depicting Etana’s flight to heaven, now add also Hrouda 1996.

Chapter 4: The Sargon Geography

p. 90 For Edom, see Dalley and Goguel 1997, with their presentation of a rock relief of what must be Nabonidus near Petra.

Chapter 5: Gilgamesh and the Distant Reaches of the Earth’s Surface

All things having to do with Gilgamesh now need to be reevaluated on the basis of the new edition by A. George (2003). The passages edited in *MCG* 96–105 are found on the following pages of George’s edition:

<i>MCG</i>		George 2003
96	Gilg. X v 25–27	692: 251–53
96–97	Gilg. I i 35–40	540: 37–42
97–98	Gilg. IX ii 1–9	668: 37–45
99	Gilg. IX v 38’–46’	672: 163–71
100–102	Gilg. IX v 47–vi	672: 172 – 674(catchline)
103	Gilg. X ii 20–27	682: 78–86
104	MVAG 7/1 15 iv 8’–11	280: 8–11
105	Gilg. XI 271–76	720: 287 – 722: 293

pp. 100–102 For a parallel to the grove of precious stones in a ritual, see CTMMA 2 120 no. 20:2–3 with commentary on p. 123.

² For a discussion contra my argument, see Haul 2000: 15–23.

Chapter 6: Cosmic Geography in Accounts of Creation

A number of new relevant publications have appeared since 1998. For *Enuma Elish*, there is the English translation and discussion by W. G. Lambert (2008) and the 2005 SAA edition with French translation by P. Talon in SAA Cuneiform Texts 4. Editions with new interpretations of the Sumerian creation passages in NBC 11108 and Sollberger-Corpus Ukg. 15 (MCG 138–41) are available in Sjöberg 2002: 229–44.

pp. 146–47 More-recent bibliography for the passages from *Enuma Anu Enlil* includes Hunger and Pingree 1999: 14 and Verderame 2002: 9.³

pp. 147–48 My new study of K. 7067, “They Multiplied the SAG by the UŠ in the Sky,” is published in the Tzvi Abusch festschrift (Stackert, Porter, and Wright 2010). Here I argue that K. 7067: 6’, “they multiplied the height (SAG) by the width (UŠ) [. . .]” refers to a standard Babylonian equation for determining the area of a semicircle: Area = $3/4 \times \text{SAG} \times \text{UŠ}$. If this is correct, then the image of the sky at creation is not a rectangle but a semicircle in two dimensions, or perhaps even better, a dome in three dimensions.⁴ This is what may be meant by the term *kippat šamê*, for which see MCG 264–65, “The Shape of the Heavens.”

pp. 149–50 For an edition of “When Anu Built the Heavens” (*enūma dānu ibnū šamê*), see now Dietrich 2000.

Chapter 7: The Geography of the Sky: The “Astrolabes,” Mul-Apin, and Related Texts

My promised edition of the “Astrolabe” group is almost ready for publication. In the interim, an edition of Astrolabe B and some of its parallels is available in Casaburi 2003. For my own ideas about the group, see now Horowitz 2007. A study of the water-clock is available in the aforementioned Brown, Fermor, and Walker 1999. For Mul-Apin, see Hunger and Pingree 1989 and 1999: 57–83.

pp. 151–52 The passage from the Diviner’s Manual has been treated more recently in Williams 2002.

pp. 179–82 An edition of “The Hilprecht Text” is now available in Oelsner 2005–6.

pp. 182–92 The reverse of the Neo-Babylonian *ziqpu*-star planisphere from Sippar published in Al-Rawi and Horowitz 2001 offers a parallel to

³ See also Verderame 2002: 23–24, 36–37 and Brown 2000: 254–55.

⁴ If the equation above is applied to the measurements given on MCG 187, the area of the dome of the sky can be calculated to be 17,886,960,000 square *bēru* ($218,400 \times 109,200 \times 3/4$).

AO 6478 (TCL 6 21). The Sippar text gives the same stellar repertoire as AO 6478, with intervals between *ziqpu*-stars measured along what would also appear to be a stellar circuit of 364 uš. Another new *ziqpu*-star fragment is CTMMA 2 no. 78. For a new take on the measurements on MCG 187, see above, n. 4.

Chapter 9: “Seven Heavens and Seven Earths: *an.7 ki.7, an.7.bi ki.7.bi, an7.ki.7.bi.da*”

See also Cagivneaux and Al-Rawi 1994 for the incantation ḫé.daddag. ge an^den.líl^den.ki and ^dnerigal (MCG 212–13) and incantations with seven AN signs (MCG 214–15).

Chapter 10: Names for Heaven

- p. 224 For the passage from Malku II, see now also SpTU 3119: 103–5. For the series *Malku* = *šarru*, see now Hrůša 2010.
- p. 232 bur, būr, būru, *burû*. Lambert (1994: 72, note to rev. 10) gives a second Akkadian loanword, *aburû* (*a-bu-ru-ú*).

Chapter 11: The Geography of the Heavens

- p. 245 To the list of occurrences of the Heaven of Anu, add KAR 25 ii 16:
ḫa-ma-ku-nu apsû níG.NA-ku-nu šamê^e šá^da-nu
 your basin is the Apsu, your censer is the Heaven of Anu
- This text and its duplicate, K. 8978 (AOAT 74 no.71), are edited in the Ph.D. thesis of Takayoshi Oshima. Cf. MCG 227 for *ermi* ^d*anim* and *šamû* used for ceilings and canopies; and Isaiah 66:1: “Heaven is my chair, Earth is my footstool.”
- pp. 255–56 The motif of the heavens as a cattle-pen and the stars as cattle and other domesticated animals is discussed independently by me (Horowitz 2010) and in a forthcoming publication by F. Rochberg (oral communication).
- p. 267 For the key, *namzaqu*, to the gates of heaven used by the Moon-god and Sun-god, see CTMMA 2 114 no. 18:4 with discussion on p. 116.

Chapter 12: Names for Earth

- pp. 269–70 The section of *Diri* now appears in MSL 15 126. For what is listed in MCG as Proto-Diri, see now MSL 15 16–19 (*Diri Nippur*) and MSL 15 74 (*Diri Ugarit*).

Chapter 13: The Geography of Earth

Steinkeller (2005) presents a model of a spherical universe consisting of two hemispheres: an upper hemisphere of the living and a lower hemisphere of the dead (pp. 18–19). A diagram of this system is given on p. 47 of Steinkeller's essay, with the Sun, Moon, and stars encircling the universe above the Earth's Surface and the Igigi and Anunnaki-gods in the upper hemisphere and underneath the Underworld in the lower hemisphere.⁵ Steinkeller's illustration offers an interesting, novel view of the universe that stands in contrast to the basic framework of levels presented in *MCG* (see, e.g., *MCG* xii and chap. 1).

However, Steinkeller's model will not work when tested against observed phenomena and most cuneiform texts. For example, Steinkeller's model places the circuit of the Sun, Moon, and stars along the outer rim of the universe. In Steinkeller's upper hemisphere, this would result in a situation where the sky must be above the heavens, where the gods reside, including the Heaven of Anu. This violates a central concept in ancient Mesopotamian cosmography, as well as the traditional cosmographies of the Judeo-Christian and Islamic world, where the part of heaven that the gods/God inhabit is above the sky and thus unseen from the realm of man.

Furthermore, Steinkeller's model places the Apsu at the eastern horizon and only at that location. Yet, KAR 307 and *Enuma Elish* take the Apsu to be a cosmic region not unlike the Heavens and Earth's Surface (see *MCG* 336), indicating a belief that the Apsu was to be found everywhere under the Earth's Surface. This is also the case in the passages from *The Shamash Hymn* cited on *MCG* 340–41, which suggest that the Apsu was to be located wherever there were seas (presumably both east and west). In addition, how can the Apsu be located only in the east if the waters of the water table, which belong to Apsu (*MCG* 336–37), were to be found below the Earth's Surface throughout the known world? Nonetheless, there is indeed evidence that the daily and annual circuits of the Sun and stars were conceived as circles consisting of an upper semicircle in the sky and a lower semicircle under the Earth's Surface (see *MCG* 186–92), but one cannot extrapolate this concept to develop a complete picture of a spherical universe, with the circuits of the Sun, Moon, and stars along the perimeter and everything else inside.

Instead, it is possible to conceive of the Sun, Moon, and stars traveling along circular paths that take them through open space in the lower heavens, which are visible from earth (below the upper unseen heavens where the gods of heaven dwell), and then beyond and beneath the horizon through the Apsu and/or Underworld. This too would explain the presence of the Sun, Moon, and stars in the Underworld in the passages cited by Steinkeller and the numerous artistic depictions of the Sun-god sailing on a boat, perhaps through the Apsu at night. Thus, there is no reason to presuppose a sort of "under-sky" in which the

⁵ This analysis is dependent in part on the article by W. Heimpel cited in Steinkeller's article on p. 18 n. 15 and in *MCG* 352 n. 46.

Sun, Moon, and stars shine above the Underworld (or below the Underworld from the perspective of the Earth's Surface).⁶

- p. 314: The use of the Akkadian term *nagbu* 'spring, source' for the waters of the Apsu allows for an interpretation of the first phrase of *The Gilgamesh Epic*, *ša nagba ūmuru*, to refer to Gilgamesh's having seen the Apsu, i.e., achieved wisdom. For discussion, see, e.g., Castillo 1998 and George 2003: 444–45.
- p. 337: For sulphur (ki.a. ^did.lú.ru.ga = *kibrītu*) coming from the Apsu, see Finkel 2000: 199, BM 42447: 4–5.
- pp. 340–41 For the Apsu and the Sea, note a deity ^d*Ap-su-ú tam-tim*, Apsu of the Sea, in SAA Literary Texts 1 241: 35'.
- p. 348 For a full-length monograph on the Underworld and its geography and features, see now Katz 2003.

Bibliography for the Addenda

- Al-Rawi, F., and W. Horowitz
2001 Tablets from The Sippar Library IX: A *Ziḡpu*-Star Planisphere. *Iraq* 63: 171–81.
- Brown D.
2000 *Mesopotamian Planetary Astronomy-Astrology*. Groningen: Styx.
- Brown D., J. Fermor, and C. Walker
1999 The Water Clock in Mesopotamia. *AfO* 46–47: 130–48.
- Casaburi, M.
2003 *Tre-stelle-per-ciascun(-mese): L'Astrolabio B: edizione filologica*. Naples: Università degli Studi di Napoli "L'Orientale."
- Cavigneaux, A., and F. Al-Rawi
1994 Charnes de Sippar et de Nippur. Pp. 73–89 in H. Gasche et al. eds., *Cinquante-deux réflexions sur le ponche-orient ancien: offertes en hommage à Léon de Meyer*. Leuven: Peeters.
- Castillo J. S.
1998 *NAGBU: Totality or Abyss in the First Verse of Gilgamesh*. *Iraq* 60: 219–21.
- Dalley, S., and A. Goguel
1997 The Sela^c Sculpture: A Neo-Babylonian Rock Relief in Southern Jordan. *Annual of the Department of Antiquities of Jordan* 41: 169–76.
- Dietrich, M.
2000 Als Anu den Himmel erschaffen hatte, . . ." Pp. 33–46 in J. Marzahn and H. Neumann, eds. *Assyriologica et Semitica: Festschrift für Joachim Oelsner*

⁶ That is, a sense of the Sun shining below Antarctica from the perspective of those in the northern hemisphere.

- anlässlich seines 65. Geburtstages am 18. Februar 1997. AOAT 252. Münster: Ugarit-Verlag.*
- Finkel, I. L.
 2000 On Late Babylonian Medical Training. Pp. 137–223 in A. R. George and I. L. Finkel, eds., *Wisdom, Gods, and Literature: Studies in Assyriology in Honour of W. G. Lambert*. Winona Lake, IN: Eisenbrauns.
- Foster, B.
 1993 *Before the Muses: An Anthology of Akkadian Literature*. Bethesda, MD: CDL.
- George, A.
 2003 *The Babylonian Gilgamesh Epic: Introduction, Critical Edition, and Cuneiform Texts*. Oxford: Oxford University Press.
 1996 Studies in Cultic Topography and Ideology." *BiOr* 53: 363–95.
- Haul, M.
 2000 *Das Etana Epos: Ein Mythos von der Himmelfahrt des Königs von Kiš*. Göttinger Arbeitshefte zur Altorientalischen Literatur 1. Göttingen: Seminar für Keilschriftforschung.
- Horowitz W.
 1997 The Great Wall of Sargon of Akkad. *N.A.B.U.* 1997 98, no. 104.
 2007 The Astrolabes: Astronomy, Theology, and Chronology. Pp. 101–13 in J. Steele, ed., *Calendars and Years: Astronomy and Time in the Ancient Near East*. Oxford: Oxbow.
 2010 Stars, Cows, Semicircles and Domes: Astronomical Creation Myths and the Mathematical Universe." Pp. 73–85 in W. Horowitz, U. Gabbay, and F. Vukosavović, eds., *A Woman of Valor: Jerusalem Ancient Near Eastern Studies in Honor of Joan Goodnik Westenholz*. Madrid: Libreria Proteo.
- Hrouda, B.
 1996 Zur Darstellung des Etana-Epos in der Glyptik. *WZKM* 86: 157–60.
- Hrůša, I.
 2010 *Die akkadische Synonymliste malku = šarru: Eine Textedition mit Übersetzung und Kommentar*. AOAT 50. Münster: Ugarit-Verlag.
- Hunger, H., and D. Pingree
 1989 *MULAPIN: An Astronomical Compendium in Cuneiform*. AfO Beiheft 24. Horn, Austria: Berger & Söhne.
 1999 *Astral Sciences in Mesopotamia*. Leiden: Brill.
- Katz, D.
 2003 *The Image of the Netherworld in the Sumerian Sources*. Bethesda, MD: CDL Press.
- Koch-Westenholz, U.
 1995 *Mesopotamian Astrology: An Introduction to Babylonian and Assyrian Celestial Divination*. Carstein Niebuhr Institute of Ancient Near Eastern Studies 19. Copenhagen: Museum Tusulanum.
- Lambert, W. G.
 1994 The Fall of the Cassite Dynasty to the Elamites: An Historical Epic." Pp. 67–72 in H. Gasche et al., eds., *Cinquante-deux réflexions sur le ponche-orient ancien, offertes en hommage à Léon de Meyer*. Leuven: Peeters.
 2008 Mesopotamian Creation Stories. Pp. 15–59 in M. Geller and M. Schipper, eds. *Imagining Creation*. Leiden: Brill.

- Oelsner J.
 2005–6 Der “Hilprecht Text”: Die Jenaer astronomisch-mathematische Tafel HS 245 (früher HS 229) und die Paralleltex-te Sm. 162 (CT 33, 11) Rs. sowie Sm 1113 (AfO 18 393f.). *AfO* 51: 108–24.
- Sjöberg, Å. W.
 2002 In the Beginning. Pp. 229–47 in T. Abusch, ed., *Riches Hidden in Secret Places: Ancient Near Eastern Studies in Memory of Thorkild Jacobsen*. Winona Lake, IN: Eisenbrauns.
- Stackert, J., B. N. Porter, and D. P. Wright, eds.
 2010 *Gazing on the Deep: Ancient Near Eastern and Other Studies in Honor of Tzvi Abusch*. Bethesda, MD: CDL.
- Steinkeller, P.
 2005 Of Stars and Men: The Conceptual Mythological Setup of Babylonian Extispicy. Pp. 11–47 in A. Gianto, ed., *Biblical and Oriental Essays in Memory of William L. Moran*. *Biblica et Orientalia* 48. Rome: Pontifical Biblical Institute.
- Verderame, L.
 2002 *Le Tavole I–VI della serie astrologica Enūma Anu Enlil*. *Nisaba* 2. Rome: Di.Sc.A.M.
- Wiggermann, F.
 1996 Scenes from the Shadow Side. Pp. 207–36 in M. E. Vogelzang and H. L. J. Vanstiphout, eds., *Mesopotamian Poetic Language: Sumerian and Akkadian*. Groningen: Styx.
- Williams C.
 2002 Signs from the Sky, Signs from the Earth: The Diviner’s Manual Revisited. Pp. 473–85 in J. Steele and A. Imhausen, eds., *Under One Sky: Astronomy and Mathematics in the Ancient Near East*. Münster: Ugarit-Verlag.