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An Ancient Celestial Empire of Benevolent Knowledge

Summary

This paper deals with the concept of anomaly in cuneiform knowledge, looking mainly at the principles of divinatory texts concerning norms and anomalies in ominous signs. I consider here one way in which the system of divinatory knowledge was consistent with early Babylonian approaches to knowledge of the heavens.

Keywords: Anomaly; sign; monster; norm; ideal.

Das Konzept der Anomalie in keilschriftlichem Wissen wird in diesem Beitrag behandelt. Untersucht werden in erster Linie die Prinzipien jener divinatorischen Texte, die sich mit Normen und Anomalien in unheilverkündenden Zeichen befassen. Auf diesem Weg prüfe ich, inwiefern das System divinatorischen Wissens mit frühen babylonischen Herangehensweisen an astronomisches Wissen übereinstimmte.

Keywords: Anomalie; Zeichen; Monster; Norm; Ideal.

This essay represents part of a chapter from my book *Before Nature: Cuneiform Knowledge and the History of Science* (Chicago: University of Chicago Press, 2016).

It is a distinct honor to contribute to a volume for Lis Brack-Bernsen, who has advanced the understanding of Babylonian astronomy with her ground-breaking methodology to explicate how and why the Babylonians observed the lunar horizon phenomena around opposition that we call the Lunar Four. Focusing upon the use of those observational data to construct the period of the moon in velocity and in latitude, she showed that col. Φ of the Babylonian System A lunar ephemeris, the column that advances by the Saros period (223 months) line-by-line, is an argument of lunar anomaly. This paper deals with anomaly from a quite different standpoint. Looking mainly at the principles of divinatory texts concerning norms and anomalies in ominous signs, I reflect here on one way in which the system of divinatory knowledge was consistent with early Babylonian approaches to knowledge of the heavens.

In the preface to *The Order of Things: An Archaeology of the Human Sciences*, Michel Foucault referred to the classification system of the fictive Chinese encyclopedia that Jorge Luis Borges entitled the “Celestial Empire of Benevolent Knowledge”, where animals are classified as

(a) belonging to the emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies.¹

Foucault said,

In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking *that*. But what is it impossible to think, and what kind of impossibility are we faced with here?²

Zhang Longxi critiqued Foucault’s analysis of Borges’ fabulous taxonomy on the grounds that Foucault did not realize

that the hilarious passage from that ‘Chinese encyclopedia’ may have been made up to represent a Western fantasy of the Other, and that the illogical way of sorting out animals in that passage can be as alien to the Chinese mind as it is to the Western. [...] In fact, the monstrous unreason and its alarming subversion of Western thinking, the unfamiliar and alien space of China as the image

1 Borges 1964, 103.

2 Foucault 1973, xv. Emphasis in the original.

of the Other threatening to break up ordered surfaces and logical categories, all turn out to be, in the most literal sense, a Western fiction.³

Certainly one of the striking features of Borges' fictive list of categories is the way in which it seems to focus on something that will not submit to the order of nature, but rather has been given its own orientation to 'something else'. And therein lies its strangeness. On the other hand, the classifications inherent in Sumerian, Sumero-Akkadian, and Assyro-Babylonian lexical and divinatory texts are not fictive, but historically real. The criteria for classification and making connections between elements of various categories found in those texts, because they do not reduce to a desire to know and classify nature, can have a similar effect.

Unlike China, ancient Babylonia and Assyria have not played the role of the Other in the Western imagination so much as they have been conscripted into the role of precursors of Ourselves, of Western civilization. And yet when it comes to the analysis of cuneiform corpora of knowledge, where the intellectual history of the ancient Near East merges with the beginnings of Western science, we find ourselves confronted with classifications and categories, even phenomena, that sometimes confound our own sense of the order of nature. Still, as conceived in the cuneiform world, the overriding goal of the observation and interpretation of phenomena was to establish norms and anomalies by means of which to find the order of things.

I Categories of signs

In various compendia of ominous signs, phenomena are organized into a great many categories. The organization of signs is sometimes such that a sign will be 'seen' that cannot occur in the world. Moreover, the consequent of a sign, including one that cannot occur, does not point to co-occurring events in the perceived world, but to associations based on a hermeneutic code. This makes for a complex set of references from which to reconstruct what it was that interested the scribes about the perceived world. The basic impetus for detailed and systematic observation of the world was divination from ominous signs.

James Allen pointed to the essential fact that

Our term 'sign' comes, of course, straight from the Latin *signum*, which in turn renders the Greek σημεῖον, whose range of uses it tracks pretty closely. Not only the term, but the idea or complex of ideas for which it stands are an inheritance from Greco-Roman antiquity.⁴

3 Zhang Longxi 1998, 21.

4 Allen 2010, 29.

The persistent preoccupation with phenomena as signs continues on into later antique and mediaeval science as well, with descendants in Western European, Eastern Byzantine and Islamic traditions, not to mention Indian science. Peter Harrison, in a striking statement, said that

For virtually the first fifteen hundred years of the common era the study of natural objects took place within the humanities, as part of an all-encompassing science of interpretation which sought to expound the meanings of words and things.⁵

Divination and astrology found a central place among various ancient and medieval cultures of knowledge, both from the point of view of prognostication as well as of the philosophy of inference-making from signs.

Ancient cuneiform knowledge of what Harrison referred to as “natural objects”, roughly for the fifteen hundred years before the Common Era, constitutes very much the same thing that he identified for the first fifteen hundred years of the Common Era, i.e., it was “part of an all-encompassing science of interpretation which sought to expound the meanings of words and things.” This is represented in the cuneiform tradition of knowledge in the overwhelming focus by the scribes on the systematic and interpretive science of divination from signs. The principal qualification must be in designating the objects of this knowledge not as ‘natural objects’, but as observed, imagined, and conceived objects in relation to physical as well as imagined things, and for the focus not on observation of the signs alone, but on their interpretation according to systematic codes embodied in textual compendia (some might argue it was really one code with particular variants for different domains of phenomena, say, exta, or births, or the stars and planets). Both the idea of a sign and the hermeneutics of the texts together constituted the science of signs in the culture of cuneiform knowledge.

In the West, the Hellenistic period saw a new focus on signs from astronomy to philosophy. Already in the 3rd century BCE Aratus began his poetic star catalog, the *Phaenomena* (lines 5–6), as Katharina Volk noted, by reference to Zeus as giver of “propitious signs to humans”,⁶ thus framing the composition in terms of signs. Volk further explained,

In addition to announcing the poem’s topic, this proem neatly states the *Phaenomena*’s conception of the world as a cosmos full of benevolent signs from an omnipresent god who has the welfare of human beings at heart. [...] The idea of the sign is central to the *Phaenomena*, as is apparent from the fact that forms of the noun σῆμα (*sēma*, pl. *sēmata*) ‘sign’ appear 47 times in the course of the

5 Harrison 1998, 9.

6 Volk 2010, 200. Cf. also Netz 2009, 186–187.

poem, those of the verb (ἐπι)σημαίνω ‘to signal’ 11 times. The [...] repetition of these and similar keywords [...] drives home the message that Aratus is *not interested in natural phenomena* (e.g., the constellations) as such, but only in as much as they are part of the cosmic system of signs that has its origin in the benevolence of Zeus.⁷

Despite the cultural track running from Rome to Greece and further on to the ancient Near East, many particulars of ancient Greek (or Roman, or medieval) ideas about signs differ from those of cuneiform texts. The ubiquity of the importance of signs throughout the cultural worlds of the ancient Near East and Mediterranean should not be mistaken for a thoroughgoing similarity or unity in how signs were understood from one cultural milieu to another.⁸ What a sign was in the cuneiform context, even as it may well have changed over the millennia-long span of the tradition, reflects nonetheless within bounds an Assyro-Babylonian way of seeing the world where the portentous, the anomalous, and the prodigious differed, however subtly, from the preternatural, the monstrous, or miraculous in the worlds of later Hellenistic (Greek, Greco-Roman, Greco-Egyptian, Indian) diviners, (Platonist or Christian) theologians or Late Antique and medieval natural philosophers who were interested in these things.

In particular, once God and nature entered into the matrix of ideas that defined the world, signs would begin to signify specifically in terms of that matrix, in which sometimes there was an equivalence of God and nature, sometimes a tension between Divine will and the laws of nature. Consider the statement of Augustine, where God’s will works within nature for His purposes:

So, just as it was not impossible for God to set in being natures according to his will, so it is afterwards not impossible for him to change those natures which he has set in being, in whatever way he chooses. Hence the enormous crop of marvels, which we call ‘monsters,’ ‘signs,’ ‘portents,’ or ‘prodigies.’⁹

The explanatory rhetoric of God and nature, or natures, is evidence of a new conceptual foundation for prognostication through signs, and for science, differentiating it from anything that developed in the Hellenic cultural realm, and certainly from that of the ancient Near East.

In the most general of terms, signs are communicative. They point to things beyond themselves, conveying information in a multiplicity of ways, as is readily seen in the fourteen meanings of ‘sign’ in the *Oxford English Dictionary*. Signs can be read and

7 Volk 2010, 200–201; my emphasis and ellipses.

8 Beerden (2013) looks at some of the differences in how divinatory signs functioned in Mesopotamia, Greece, and Rome, focusing on the textual

(cuneiform) or non-textual (Greek) nature of divination, the institutional settings of the diviner.

9 Augustine, *City of God*, cited from Daston and Park 2011 [1998], 40.

understood, or variously interpreted. Signs can be linguistic and orthographic, and thus can themselves constitute a form of writing, literally (cuneiform or any other script) or figuratively (the liver, the stars and planets, or the Book of Nature). Like its English counterpart, Akkadian *ittu* had a range of meaning from ‘mark, feature, characteristic’, or even ‘diagram’, to ‘omen’, ‘password, signal, notice, acknowledgment’, and ‘written proof.’¹⁰ Signs entered into the Western cultural-historical discourse on various levels, including the linguistic, the theological, the philosophical, the divinatory and the medical diagnostic. The last two in this enumeration played a central part in the discourse of the Assyro-Babylonian scholars.

From these general statements, many distinctions are to be made among the forms, the functions, as well as the responses to ominous signs in cuneiform texts. In addition to the various kinds of signs, another important distinction can be made between signs that were seen and/or reported and those that are found as entries in written compendia, as in the series *Enūma Anu Enlil*,¹¹ *bārūtu*,¹² *Šumma izbu*, and others. The compendia served as vehicles for organizing the signs together with their portents in complex lists of antecedent-consequent statements, the conditional statements ‘If P, then Q’. The phenomena are presented in a way that follows a fundamental method of interpretation, more or less employed in each series. This method has been variously referred to as a code,¹³ or a hermeneutic strategy.¹⁴

The relationship between the antecedent and consequent clauses allowed the development of thinking about signs to encompass the observable, the possible, and the conceivable, including, within the category of conceivable signs, those that cannot occur in actuality. Actuality, as we might define it by what is permissible by nature, was not the focus of the scholarly imagination working within the sources in question here. The so-called impossible phenomena have been a puzzle to modern scholars for a long time. It has been offered that the invention of these impossibilities was to fill out and complete interpretive schemata. This is undoubtedly so, but nonetheless question-begging as to the nature of the framework in which the interpretive schemata had validity. Perhaps the reason for our puzzlement is that for too long we have failed to see how a notion of the order of nature was fundamentally absent from and irrelevant to cuneiform divination. The omen series explored the world in a different way.

10 See CAD, Vol. 7, I/J, 304b, s.v. *ittu*, meanings 1–4.

11 See Veldhuis 2010, 77–91.

12 On the difference between the omens from extra in the series versus those in the ‘extispicy reports’, see Heeßel 2012, 16–35, especially 33–35.

13 Koch-Westenholz 2000, 13; Brown 2000a, 106 and elsewhere throughout the text.

14 De Zorzi 2011.

2 Norms and anomalies

What were the characteristics that rendered phenomena ominous? Though many details of the appearances of stars, moon, sun, planets, animals, birds, and insects, human appearance and behavior, as well as sounds and light phenomena, and things seen in dreams, were ominous, not every single phenomenon was an omen. It is with respect to some conventionally established system of reference (the code or hermeneutic method) that something was interpretable as ominous, and even though many unreal and purely imagined phenomena were included in the schematic compilations of ominous phenomena, the system supported a notion of norms and a sense of normal and abnormal. Georges Canguilhem noted the ambiguity of the term *normal*:

Sometimes it designates a fact that can be described through statistical sampling; it refers to the mean of measurements made of a trait displayed by a species and to the plurality of individuals displaying this trait – either in accordance with the mean or with certain divergences considered insignificant. And yet it also sometimes designates an ideal, a positive principle of evaluation, in the sense of a prototype or a perfect form.¹⁵

Canguilhem saw these two meanings as linked, therein finding the ambiguity of the term *normal* at the root of medical thinking about the pathological. In the realm of cyclical physical phenomena, such as those of the sun, moon, planets, and ecliptical star phases, the idea of a mean stemming from a measured standard is a related concept. I submit that the conceptual link Canguilhem drew attention to for the life sciences is also manifested in cuneiform sciences, from divination – which employed the sense of an ideal¹⁶ – to astronomy, which began with the usage of the mean as an ideal, to a later approach that focused on anomaly as defined in relation to a numerical mean.

Referring to the turn of the nineteenth century anatomist and physiologist (and father of histology) Bichat, Canguilhem noted that

in his *Recherches sur la vie et la mort* (1800), Bichat locates the distinctive characteristic of organisms in the instability of vital forces, in the irregularity of vital phenomena – in contrast to the uniformity of physical phenomena.¹⁷

Further, he defined Bichat's vitalism in his idea that "there is no pathological astronomy, dynamics, or hydraulics, because physical properties never diverge from their 'natural

15 Canguilhem 2008 [1965], 122.

16 David Brown first pinpointed the importance of the ideal as a norm in Brown 2000a, 113–122, and 125–126.

17 Canguilhem 2008 [1965], 122.

type.”¹⁸ The integrity of inanimate physical forms, therefore, did not permit the appearance of ‘monstrosities’ among such phenomena as, say, the moon and planets. Canguilhem stressed the distinction between living organisms’ capacity for monstrosity and the fact that “there is no machine monster,”¹⁹ saying, “the distinction between the normal and the pathological holds for living beings alone.”²⁰

It seems relevant in this context to observe that across the various omen text categories a distinction between anomalous features of physical phenomena and monstrous features of births does not seem to be made. On the other hand, if we search for conceptions of the normal over a range of Akkadian divinatory texts, the same ambiguities as Canguilhem described for the concept may be found. That is, normal can be gauged in terms either of a ‘mean of measurements’ or an ideal, a ‘positive principle of evaluation,’ where that ideal is determined by the divine scheme of things.

The adjective *kajamānu* (SAG.UŠ) ‘normal’ is found in omens of the *izbu* and *ālu* series, as well as in extispicy, as a description of, or a feature of a phenomenon. In addition to the passages cited in CAD s.v. *kajamānu* usage a 1’ and 2’, a number of additional passages from liver omens can be adduced, referring to the ‘Presence’ (*manzāzu*) of the liver, meaning the feature of the liver associated with the presence of a deity. For example, from early exemplars (2nd millennium Middle Babylonian and Middle Assyrian):

If the normal Presence is there and a second one is placed on the left: The king will resettle his abandoned territory [...].²¹

And from another Middle Babylonian source:

If the normal Presence is there and a second one descends to the River of the Pouch: The gods of your army will forsake it at its destination ([source] B adds: and it will be routed).²²

We might cite, additionally, the statement from an extispicy ritual, “[f]or his well-being let there be a normal *naplastu*, let there be a normal *manzāz ilim*,” referring to the Presence (of the god) on the liver.²³

In light of Canguilhem’s reference to the ‘mean of measurements’ being a defining basis for a conception of the ‘normal,’ a passage from a late Uruk commentary may be

18 Canguilhem 2008 [1965], 122.

19 Canguilhem 2008 [1965], 90. From a completely different point of view, cf. Zakiya Hanafi’s notion of mechanical monsters, in Hanafi 2000, 76–96.

20 Canguilhem 2008 [1965], 90.

21 Koch-Westenholz 2000, 72, text exemplars K 7, E 12, A 11’, and B 1’; my omission (truncating Koch’s

parenthesis). See also elsewhere in the Appendix to the Introduction.

22 Koch-Westenholz 2000, 94, line 31, text exemplars A r 8’ and B r 15’. Bracketed insertion [‘source’] added by the author.

23 Starr 1983, 32, cited from Koch-Westenholz 2000, 52, note 139.

noted that explains ‘the measurement of a normal Presence’ as of three fingers length.²⁴ Ulla Koch cites another, Neo-Assyrian period, text that also describes norms in the features of the liver in terms of sizes:

The Presence, the Path, the Pleasing Word, the Strength, the Palace Gate, the Well-being, the Gall Bladder, the Defeat of the Enemy Army, the Throne Base, the Finger, the Yoke and the Increment, the designs (subsections) of the Front of the Pouch are three fingerbreadths each measured in the ‘large finger,’ the finger of the diviner or the *asli*-measure. Seven Weapons, five holes, three Fissures you count as *niphus*. The Foot is one fingerbreadth long, the Fissure is half a fingerbreadth long, the cleft is two fingerbreadths long, the *šithu* is three fingerbreadths long, they affect the consecrated place. The circumference of the liver is one cubit 6 fingers, 14 fingers its diameter(?).²⁵

As Koch-Westenholz noted,

The liver may undergo morphological changes or changes due to diseases or parasites. Also external influences can cause changes in the appearance of the liver in the form of lesions and contusions, and different causes may have the same symptoms on the liver. All this was obviously irrelevant to the Babylonians; only the visible symptoms were of interest. They did note the healthy and normal appearance as a favorable sign.²⁶

Despite the fact that the health and wholeness of the liver are regarded as of positive divinatory value, the emphasis on deriving positive and negative values for features of the exta overrides the value of the norm in a biological or anatomical sense. The evidence shows that from the seventh century to the later Babylonian Period the system was relatively unchanged, and did not reduce solely to a binary of normal and abnormal, but employed many schemes for determining positive and/or negative outcomes of a liver inspection. As Koch-Westenholz implied, the designation of what was normal did not relate to an investigation of the physical causality of malformation. The interpretive scheme did not function around the understanding of what makes for biological normality, but rather what could be observed of regularity and irregularity from a visual standpoint. Nor did it work in this way in the omens from the twenty-four tablet *Izbu* series, which itself seems to be based, by definition, in the *abnormal*.²⁷

24 CAD, Vol. 8, K, 37b, s.v. *kajamānu*, usage a 2', TCL 6 6 ii 3.

25 Koch-Westenholz 2000, 40: CT 20 44 i 52–58. Interrogation mark copied from Koch.

26 Koch-Westenholz 2000, 40–41.

27 Note that the D-stem adjective *uzzubu*, attested only in lexical texts, according to the CAD entry s.v. means ‘freakish, anomalous, monstrous’ (CAD, Vol. 20, U/W, 395b).

The omen series *Šumma Izbu* ‘if a malformed birth’ seems to be the right place to raise the question of whether the scribes thought in terms of ‘monsters.’ To put the notion of an *izbu* in the context of monsters requires reference to later history.²⁸ In later antiquity the understanding was that it was in the power of God to act within and against nature to produce any conceivable, or inconceivable, phenomenon so as to communicate with humankind. Indeed, by its etymology, a monster is something that ‘warns’ (Lat. *monere*) and is therefore a portent (Lat. *monstrum*).²⁹ Isidore of Seville, for example, said:

Portents, according to Varro, are those things that appear to be produced against nature. But they are not against nature, since they happen by the will of God, since nature is the will of the Creator of every created thing. For this reason, pagans sometimes call God nature and sometimes, God. Therefore the portent does not happen against nature, but against that which is known as nature [*contra quam est nota natura*]. Portents and omens [*ostenta*], monsters and prodigies are so named because they appear to portend, foretell [*ostendere*], show [*monstrare*] and predict future things.... For God wishes to signify the future through faults in things that are born, as through dreams and oracles, by which he forewarns and signifies to peoples or individuals a misfortune to come.³⁰

While Isidore’s reasoning may not be totally incompatible with what can be reconstructed for Assyro-Babylonian thinking on the matter, his explanatory rhetoric is. On the grounds of the attributions in prayers to the unlimited power of the gods as well as from the omens themselves, the Assyro-Babylonian gods were viewed as producing any conceivable phenomenon to signal yet another event, but the key element of explanation, as Isidore related it, either that God acts against nature, or that God’s will is tantamount to nature, departs from the framework within which omens would be understood by the cuneiform scholars.

An *izbu* is clearly a birth, and in the omen series, *izbus* can be of animal (dog, pig, bull, cow, sheep, goat, donkey or horse) and human births.³¹ *Izbu* is defined in a bilingual lexical commentary as a “prematurely born fetus that has not completed its months.”³² The description of human *izbus* may be found in the first Tablet of the series, where a woman gives birth to newborns with various sorts of impairments (blindness,

28 For an outline of this history, see Hanafi 2000.

29 Hanafi 2000, 12–13.

30 Isidor of Seville, *Etymologiarum sive originum libri XX*, cited from Daston and Park 2011 [1998], 50. Ellipsis added by Daston and Park.

31 CAD, Vol. 7, I/J, 318a, s.v. *izbu*, usage b, K. 2315: 6off., and for the reference to a malformed foal, see usage c 2’.

32 CAD, Vol. 7, I/J, 318a, s.v. *izbu*, lexical section.

Izbu I 60, and deafness, *Izbu* I 63)³³ or deformities (mental, as in a *lillu* ‘fool’,³⁴ physical, as in *akû* ‘deformed’,³⁵ and various kinds of conjoined twins). Included among the omens from human *izbus* are descriptions such as ‘if a woman gives birth to a lion/wolf/dog/pig/bull/elephant/ass/ram/cat/snake/tortoise/bird’,³⁶ as well as ‘... to membrane’,³⁷ or ‘spittle’.³⁸ There are also omens for multiple births,³⁹ up to ‘eight or nine’, in the last omen of Tablet I: “If a woman gives birth to eight or nine (children): A usurper will attack; [...] the land will become waste.”⁴⁰

Overall, including the *izbus* from animal births, Nicla De Zorzi has shown how the conception of deformity manifested itself in the categories of (1) malformations resembling animal features, (2) absence of body parts, (3) deformed or incomplete body parts, (4) misplacement of body parts, and (5) presence of excess body parts.⁴¹ Some of the *izbus* are vividly imagined, as for example,

If a woman gives birth, and (the child) is half a cubit tall, is bearded, can talk, walks around, and his teeth have already come in, he is called ‘*tigrilu*’: Reign of Nergal; a fierce attack; there will be a mighty person in the land; pestilence; one street will be hostile to the other; one house will plunder the other.⁴²

On the other hand, further evidence that *izbus* were not conceived of as monsters is that breach birth,⁴³ and twins, both identical and fraternal,⁴⁴ are also found in the series, neither of which would classify as ‘monsters’ today for their irregularity.

Erle Leichty noted in his introduction to the series’ *editio princeps* that

the ancient Mesopotamians had no interest in the scientific study of anomalies to seek out their cause or cure. Their interest was centered on the apodosis, or prediction, and not the anomaly itself [...] His major concern with the anomaly itself lay in description, and he classified anomalies only to enable himself to find them within the series in order to ascertain their significance.⁴⁵

At the time of writing (1970), in order to qualify as science, the study of birth anomaly had to have explanatory and causal components as to why such malformations occurred biologically, or from the point of view of the genetics of the developing embryo. As

33 Leichty 1970, 37.

34 Note the late *Izbu* commentary to the term *lillu*, cited in Frahm 2011, 209: ^{lú}lil : *sak-lu* ^{alú}lil (means ‘imbecile’; BM 77808 rev. 1.

35 CAD, Vol. 1, A, Pt. 1, 284a, s.v. *akû* B, and note that the commentary text to *Izbu* explains *akû* as *enšu* ‘weak’; see CAD *akû* B lexical section.

36 *Izbu* I 5–23, see Leichty 1970, 32–34.

37 *Izbu* I 28 and 29, see Leichty 1970, 34.

38 *Izbu* I 71, see Leichty 1970, 38.

39 *Izbu* I 83–131, see Leichty 1970, 39–44.

40 *Izbu* I 131, see Leichty 1970, 44. Ellipsis copied from Leichty (damaged signs in the Akkadian).

41 De Zorzi 2011, 46.

42 *Izbu* I 82, see Leichty 1970, 39.

43 *Izbu* I 85, see Leichty 1970, 39.

44 *Izbu* I 83 (identical twin boys), 86 (fraternal twins), see Leichty 1970, 39.

45 Leichty 1970, 16.

a consequence of this approach, Leichty emphasized the systematic nature of the omen series' compilation of so many malformed births, even though they lacked the notion of physiological deformity having determinant causes. Despite his underlying sense of the non-scientific character of the anomalous birth omens, Leichty rightly observed the importance of the *izbu*'s description and in what sort of interpretation the entity was given, rather in line with Harrison's "science of interpretation which sought to expound the meanings of words and things". The cuneiform study of anomalies at the births of animals or humans was based on the same kinds of relationships between features of other phenomena construed as positive or negative in accordance with an idea of the norm. A binary interpretive system in which right has positive value and left negative, enabled an anomaly on the left side of an 'anomaly' to be positive. Thus:

If a woman gives birth, and the right foot is twisted: That house will not prosper.

But:

If a woman gives birth, and the left foot is twisted: That house will prosper.⁴⁶

De Zorzi discussed the binary oppositions of above and below, front and back, inside and outside, large and small, right and left, male and female, dead and alive, as well as normal and abnormal in the context of the *Izbu* series. She said:

The most common form of binary opposition in the protases is the opposition right/left. The corresponding apodoses fall into the opposing categories of favorable/unfavorable predictions, thus combining themselves with the protases to form pairs of omens based on as structure of symmetric oppositions. While this organizational principle is in evidence in all divinatory disciplines, in *Summa Izbu* a malformation on the right side (normally the *pars familiaris*) is considered negative, a malformation on the left (normally the *pars hostilis*), positive. This is owed to the context of the observation: a malformation being *eo ipso* a negative sign, the normal meaning of the opposition right ('favorable')/left ('unfavorable') is inverted.⁴⁷

The same interpretive reasoning is also found with respect to planetary phenomena in which the binary pair bright/dim is applied to planets taken to represent benefic (Venus and Jupiter) or malefic (Mars and Saturn) qualities. Brightness is usually a positive indication, and dimness a negative. The brightness of a malefic planet, either Saturn or Mars, is therefore judged to be negative, while its dimness is positive, and vice versa

46 *Izbu*, III 83 and 84, see Leichty 1970, 62.

47 De Zorzi 2011, 52–53. This was also noted in Jeyes 1991/1992, 35.

for the benefic planets Jupiter and Venus.⁴⁸ It was no doubt in relation to the degree of brightness that the planets came to represent benefic or malefic qualities in the first place. In relation to the system of analyzing *izbu*, which were abnormal and unpropitious in and of themselves, in much the same way as malefic planets were ‘bad’ and unpropitious in and of themselves, the parallel in Late Babylonian texts concerning planets shows that such associations had nothing to do with physical essences, but rather with the value of the phenomenon as a portent, propitious or unpropitious. In the context of the planets, nothing can be inferred as to the planets’ nature as physical phenomena from the Babylonian standpoint. Far from representing Canguilhem’s “machine monster”, or Bichat’s “mechanical pathology”,⁴⁹ malefic planets had ‘by definition’ negative interpretive value within a divinatory schema.

Thus, the norm for an *izbu*, as for a malefic planet, was simply that untoward events were signaled in each case. Their appearances could, however, signal propitious events if an inversion of the binary values right/bright = good or left/dim = bad, or the like, occurred. Consistent with Koch-Westenholz’s observation of what was of chief interest to the diviner’s inspection of the liver, that is, in visual description rather than underlying causes of variation or deformation, the *izbu* were a focus of interest because they represented a class of negatively evaluated forms.

As in extispicy, implicit in the *izbu* omens was the notion of a norm against which *izbu*, as a class of phenomena, were judged abnormal, and in relation to which the scholarly imagination spun its variations on normal. Indeed, *izbu* omens occasionally use the term ‘normal’ to refer to a part of the newborn not construed as anomalous, however attached it was to the anomaly. Thus:

If there are 2 *izbu* and they are normal (*kajamānu*) except the second one protrudes from his (the first one’s) mouth: The king will be defeated, and his army [...] his troops and his suburbs will be devastated.⁵⁰

If an *izbu* has 2 heads, and the second one rides (above) the normal (SAG.UŠ) one: Rebels will revolt against that prince.⁵¹

If an *izbu*’s eyes are normal (SAG.UŠ.MEŠ), but it has a third one on its forehead: The prince [...] ⁵²

The malformed birth omens attest to the keen study of the morphological variation of animal and human births alike, in which was embedded the idea of a norm. As Canguilhem also pointed out, morphological anomaly is not, by definition, pathology, which

48 Rochberg-Halton 1988, 319–324, and Rochberg 2010, 135–142.

49 Canguilhem 2008 [1965], 90.

50 *Izbu* VI 28, see Leichty 1970, 87. My omission.

51 *Izbu* VIII 50, see Leichty 1970, 106.

52 *Izbu* X 58’, see Leichty 1970, 126. Text broken at ellipsis.

seems to have first been conceived by Aristotle in the *Physics*,⁵³ where a monster is an error of nature. The separation of monsters from prodigies, according to A. W. Bates, did not occur until the sixteenth century:

[N]either classical embryology nor its medieval interpretation required it [the separation between monsters and prodigies] to be made. In medieval times monsters were *peccata naturae* (slips of nature) and in common with other rare or unusual happenings they were ‘unnatural’: to the medieval mind expressions such as *praeter ut in pluribus* (outside that which occurs frequently) and *praeter naturam* (beyond the range of nature) were interchangeable.⁵⁴

Consistent with this remark, Daston and Park observed that in the Middle Ages “the explanation of monsters by natural causes” could be found side by side with the idea that monsters were divine portents, sent by God as a warning for sinners.⁵⁵ In their words, “[monsters] were suspensions of that [natural] order, signs of God’s wrath and warnings of further punishment.”⁵⁶

Daston and Park’s *Wonders* devoted a chapter to the phenomenon of monstrous birth in the early modern period, presenting a case study of a monster born in Ravenna of the early sixteenth century. This birth could almost have been an entry in the *Izbu* series, as it

had a horn on its head [...] and instead of arms it had two wings like a bat’s, and at the height of the breasts it had a *fio* [Y-shaped mark] on one side and a cross on the other, and lower down at the waist, two serpents, and was a hermaphrodite,⁵⁷ and on the right knee it had an eye [...].⁵⁸

Shortly after the creature’s birth, enemy troops came and sacked the city of its birth. As the contemporary source remarked further:

53 Aristotle 1941, Second Book, ch. 8.

54 Bates 2005, 113, parentheses in the original, brackets added by the author.

55 As Daston and Park (2011 [1998], 181–182) said: “The contemporary French chronicler Johannes Multivallis related its [the Ravenna monster’s, FR] deformities to particular moral failings: ‘The horn [indicates] pride; the wings, mental frivolity and inconstancy; the lack of arms, a lack of good works; [...] the eye on the knee, a mental orientation solely toward earthly things; the double sex, sodomy. And on account of these vices, Italy is shattered by the

sufferings of war, which the king of France has not accomplished by his own power, but only as the scourge of God.” My ellipsis; the second bracketed insertion [‘indicates’] was added by Daston and Park, all other bracketed insertions were added by the author.

56 Daston and Park 2011 [1998], 51 (my insertions).

57 See Leichty 1970, 8 on hermaphroditic *izbus*.

58 Luca Landucci, *A Florentine Diary from 1450 to 1516*, cited after Daston and Park 2011 [1998], 177. My ellipses; the bracketed insertion [‘Y-shaped mark’] was added by Daston and Park.

It seems as if some great misfortune always befalls the city where such things are born; the same thing happened at Volterra, which was sacked a short time after a similar monster had been born there.⁵⁹

The similarity between the ancient Near East and Western Europe in prognosticating from monstrous births could be due ultimately to the Greco-Roman cultural bridgehead that enabled material of Near Eastern origins to penetrate Western Europe.⁶⁰ The idea that it was God's work within, or against, nature that provided an explanation for monsters, however, is altogether different from what was conceptually available in cuneiform texts.⁶¹

During the Neo-Assyrian period, the untoward consequences of *izbus*, as well as those of many other signs, both for those given by the gods in the heavens or on earth, as well as signs from extispicy,⁶² were dealt with by means of rituals called *namburbi*, performed by an *āšīpu* or *mašmašu*.⁶³ As is the case in many technical terms in the Akkadian scholarly corpus, *namburbû* is a loan from Sumerian NAM.BÛR.BI, meaning 'its BÛR'; with NAM acting to nominalize the verb BÛR. The Akkadian equivalent for Sumerian BÛR is *pašāru* 'to loosen,' or 'undo,' 'release,' even 'exorcise.'⁶⁴ These rituals were utilized against the evil portended by ominous signs, as well as other potential dangers (e.g., temple offices not carried out properly, headache or disease among the army and horses going on campaign, the effects of sorcery and witchcraft, the evil of fungus).

In his full-length treatment of the *namburbi* ritual,⁶⁵ Richard Caplice discussed the semantics of *pašāru* in order to specify the purpose of the ritual. He pointed out that among the fundamental senses of this verb is that of a restoration to order, in contexts where the word is used to mean 'untangle' or 'unravel,' i.e., to a state of right order. He cited a passage from *Šurpu* which states that the evil of sorcery may be unraveled by "the symbolic and magically efficacious act of unraveling a tangle of matted material."⁶⁶ He concluded that it is this sense that applies in the *namburbi* ritual against ominous signs. What is being untangled, or set to rights, is, as Caplice argued, the evil (HUL/*lumnu*) portended by signs, not the sign itself. It is clear in any number of *namburbis* that this is the case, for example the *namburbi* against the evil portended by certain birds.⁶⁷

59 Daston and Park 2011 [1998], 177.

60 See Jacobs 2010, 317–339.

61 Similarly, in the *Treatise on Monsters* of Fortunio Liceti of the early modern period, the possible generation of monsters is understood as "supernatural, infranatural, and natural productions". Although he speaks only about these natural causes, Liceti does not fail to mention that "the sole, efficient cause is Almighty God, that is, motive Intelligence and

the Heavens". (Cited after Hanafi 2000, 35; italics by Hanafi.)

62 For two kinds of apotropaic rituals for extispicy, see Koch 2011, 456–465, and Koch 2010, 46.

63 See Maul 1994.

64 See CAD, Vol. 12, P, 236b, s.v. *pašāru*.

65 Caplice 1963.

66 Caplice 1963, 23.

67 Caplice 1967, Texts No. 25, 26, 27, and 28, and republished in Maul 1994, 234–248, 268–269, and 256–268.

Expressions used in the sources are unequivocal in saying their purpose is to ‘make the evil pass by’ – a phrase used as well in the context of lunar eclipses portending unto-ward events – or ‘so that the evil not approach (the man)’. Indeed, the undoing of evil is the goal. However, as in the passage quoted at length below, the *izbu* itself will also be destroyed in the process of undoing its evil. Similarly in reference to a lunar eclipse, a *namburbi* is performed against its evil portent, but the eclipse itself is also in effect un-done, as the lunar disk becomes bright again. In each case, the purpose of ritual action is to restore the order of things threatened by the appearance of a bad sign.⁶⁸

The following is a series of *namburbi* rituals for dispelling the evil of an *izbu*, col-lected on one tablet. To dispel the portended evil the supplicant went symbolically be-fore the divine judge, the sun-god Šamaš, and by means of plants, the river, or strings of beads, cast it out.

If in a man’s house there was an *izbu*, whether of cattle, or of sheep, or an ox, or [r a goat], or a horse, or a dog, or a p[ig], or a human being, in order to avert that evil, [that it may not approach] the man and his house:

You go to the river and construct a reed hut. [You scatter] garden plants. You set up a reed-altar. Upon the reed-altar you pour out seven food-offerings, beer, dates, (and) *šasqû*-flour. [You set out] a censer of juniper. You fill three *lahannu*-vessels with fine beer, and [you set out] [. . .]-bread, DÌM-bread, ‘ear-shaped’ bread, one grain of silver, (and) one grain of go[ld]. You place a gold ZU on the head of that *izbu*. You string a gold breast-plate on red thread. You bind it on his breast. You cast that *izbu* upon the garden plants. You have that man kneel, and recite thus:

Incantation: Šamaš, judge of heaven and earth, lord of justice and equity, who rule over the upper and lower regions, Šamaš, it is in your hands to bring the dead to life, to release the captive. Šamaš, I have approached you; Šamaš, I have sought you; Šamaš, I have turned to you. Avert from me the evil of this *izbu*! May it not affect me! May its evil be far from my person, that I may daily bless you, that those who look on me may forever [sing] your praise!

You have him recite [this] incantation three times. The man’s house [will (then) be at peace] [. . .], and before the river [you recite] as follows:

[Incantation: y]ou, River, are the creator of ev[erything]. [. . .]-sun, the son of Zerūti, whose [personal god is Nabû, whose personal goddess] is Tašmētu, who [is beset by] an evil *izbu*, is therefore frightened (and) terrified. Avert [from him]

68 Caplice 1967, 26. See also Caplice 1971, 166–168, Text No. 65, republished in Maul 1994, 458–460.

the evil of this *izbu*! May the evil not approach (him), may it not draw near, [may it not press upon (him)!] May that evil go out from his person, that he may daily bless you (and) those who look on [him] may forever sing your praise! By the command of Ea and Asalluḫi, remove that evil! May your banks not release it! Take it down to your depths!

Extract that evil! Give (him) happiness (and) health! You recite this three times, and cleanse the man with water. You throw tamarisk, Dilbat-plant, *qān šalali*, a date-palm shoot, (and) the *izbu*, together with its provisions and its gifts, into the river, and you undo the offering-arrangement and prostrate yourself. That man goes to his house.

[You string] carnelian, lapis-lazuli, serpentine, *pappardillu*-stone, *pappardillu*-stone, bright obsidian, *ḫilibû*-stone, [...] (and) breccia on a necklace. You place it around his neck for seven days [...] the evil of that *izbu* will be dis[sipated].⁶⁹

The final point to consider is whether *izbus* were understood as an expression of divine wrath, in the manner argued in the context of later European monstrous births. This is an interpretation deeply rooted in Assyriological literature, going back, according to Caplice, to Julian Morgenstern in the early twentieth century.⁷⁰ We find it again in Stefan Maul,⁷¹ and in Amar Annus' introduction to the volume on divination, where he said, "according to Namburbis, the person to whom the evil omen was announced had to placate the anger of the gods that had sent it to him and effect the gods' revision of their decision"; thereby achieving "a correction of his fate which the gods had decreed."⁷² In the *namburbi* rituals for the *izbu* quoted above, the person in whose house an *izbu* appeared presents himself before the sun-god and says the incantations that ask the god to rid him of the evil omen and prevent that evil from approaching. The ritual does not involve appeasement of the gods either on the part of the supplicant or the *āšipu* in charge of the ritual performance, but consisted of various symbolic acts of casting off (onto the plants, into the river) and cleansing, as well as the request through incantation for restitution by the divine judge, Šamaš. Šamaš is not to be placated, but to receive the plea and make a decision. Just as the *izbu* omens' interpretive structures had to do with norms and abnormality, the ritual against an *izbu*'s portended evil acted

69 See Caplice 1965, 125–130, Text No. 10, republished in Maul 1994, 336–343. Note that the lines of the tablet have been run together for space saving. In general, words or letters inside square brackets mean that the broken tablet has been restored, while parentheses mark translator's glosses. Parentheses, brackets, and ellipses were inserted by

Caplice, except the first ellipsis of the last paragraph (where Caplice has another restored portion inside brackets).

70 Caplice 1963, 28–29 and note 1, where he cites Morgenstern 1905.

71 Maul 1994, 10.

72 Annus 2010, 7.

to remove or keep evil away and re-establish the norm. As expressed in the *namburbi* text, the norm, or the normal, was taken as happiness and health.

The question of whether an *izbu* signifies divine anger is still not resolved, however, as the *namburbi* for the evil of an eclipse, mentioned above, offers another perspective. A lunar eclipse was the manifestation of a disturbance of the moon-god, often expressed as that god's being in mourning or emotional distress (*lumun libbi*, literally 'trouble of the heart'). In some contexts *lumun libbi* means 'anger'.⁷³ The afflicted person is required to set up an altar to the moon-god, Sin, present offerings and, prostrated, recite a prayer three times before the moon/moon-god, as the celestial body and the god are, for the purpose of the ritual, one and the same:

May the great gods make you bright! May your heart be at rest! May Nannar of the heavenly gods, Sin the exorcist, look (hither)! May the evil of eclipse not approach me or my house, may it not come near or be close by, may it not affect me, that I may sing your praises and those who see me may forever sing your praises!⁷⁴

The text adds for the *āšipu*:

You have him recite this, and you undo the offering arrangement. You perform the [ritual] for the evil of signs and portents, and the evil of eclipse will not approach him.⁷⁵

The exhortation in the prayer for the quieting of the moon-god's heart is a clear reference to *lumun libbi*.⁷⁶ Whether the connotation is of the moon's grief, or his anger, is not clear, even though the phrase is normally understood in astrological contexts to mean 'grief'. In any event the eclipse was construed as a sign of the moon-god's state of mind, which had to be restored to its normal state of brightness (and happiness) by an offering and the recitation of the prayer. This strikes a contrast to the *izbu*. As the *izbu* was not referred to as the result of divine anger, the ritual does nothing to appease a god, but rather it brings the matter before the sun-god as judge to restore things to normal.⁷⁷

73 CAD, Vol. 9, L, 250b, s.v. *lumun libbi*, meaning 2.

74 Caplice 1971, 168. Parenthesis by Caplice.

75 Caplice 1971, 168. Brackets by Caplice.

76 Interestingly, in the section preceding the prayer (line 5'), a reference is made to the condition of the afflicted one's heart.

77 Cf. the Sumerian incantation included in another *namburbi*: "Incantation: The sign that is evil shall not approach the man! At the word of Utu [= Šamaš, FR], baillif of the gods, who defeats the

sign that is evil for man, (who defeats) anything (evil) that approaches, – though the man (lit. seed of man) himself be unaware of it [alternatively: may not be aware of it, FR] – it shall not approach him to his detriment! Like water – water poured into the canal – his punishment shall not approach him! His evil shall not hover about him! (These are) the words of Enki and Asalluḫi!" See Caplice 1967, 273–274, Text 25: 14'–19', and translation on p. 276, quoted here (parentheses by Caplice).

The foregoing discussion aimed to show that *izbus*, premature or malformed births, were not conceived of as monsters, and the word *izbu* does not signify a ‘monster,’ except in the classical sense of a portent. The evil portended by an *izbu* does not seem to have been conceived of as a result of divine wrath, or as punishment for human sin. They were not errors of nature, or deviations of nature from its own laws, but only portents in the same way as were other ominous signs in cuneiform, i.e., as part of a language of divine communication in the exta, in the heavens, and in other domains, for indicating both favorable and unfavorable consequences of representations of or deviations from the norm.

Variation with respect to a conceived norm made signs ominous, but not all omens in the cuneiform world were anomalies. Phenomena that fell within norms were also portentous, and were deemed propitious. Again, where Canguilhem placed the conception of the monster, or the monstrous, in the context of living phenomena, the cuneiform material leveled the playing field for all ominous phenomena, not reserving ‘monstrosity’ for the living, indeed, not expressing the notion at all.

3 Celestial signs and astral phenomena: regularity and anomaly

Norms for cyclical astral phenomena were defined differently from those in the biological realm, where the definition of health, or ‘normal,’ permits a good deal of variability before one begins to speak of a defect or an anomaly. Evidence of this kind of standard of measure by the healthy appearance of the liver or other organs is found in extispicy omens. In the *izbu* omens, the standard itself was anomalous, as just discussed.

Periodic phenomena in the heavens, on the other hand, are amenable to counting, or other arithmetical methods by which to construe regularity. As a result the term meaning ‘normal’ in astral omens is *minîtu*, from the verb *manû* ‘to count.’ Thus, the day when sun and moon were in opposition on an anomalous day of the lunar month, was expressed as *ina la minâtîšunu*, literally, ‘not according to their (calculated) norm,’ or a lunar eclipse might occur *ina la minâtîšu* ‘not according to his (the moon’s) (calculated) norm.’⁷⁸ A similar expression is constructed with the word *simanu* ‘time,’ i.e., ‘not according to its time,’ where the sense of a celestial body’s appearance anomalously is conveyed.⁷⁹

Such references relate to Canguilhem’s first notion of normal as the measured or calculated mathematical mean. But the function of the norm in the various cuneiform divinatory contexts, astral, extispicy, and *izbu* omens alike, was to differentiate the meaning of those signs by deviations from ‘normal.’ Where Canguilhem focused on the de-

78 CAD, Vol. 10, M, Pt. 2, 87a, s.v. *minîtu*, meaning 1d.

79 CAD, Vol. 15, S, 269b, s.v. *simanu*, usage c.

velopment of ideas of pathology in life forms, he noted the problem with such a notion in physics and mechanics. While celestial divination was oriented to phenomena that would also be of interest to later physics and mechanics, the interest in them was as signs, in the same framework as the liver and the *izbu*. From the point of view of divinatory knowledge, there was a unity between the signs in heaven and the signs on earth; all belonged to the category of signs. The other aspect of Canguilhem's investigation into the normal were his remarks about the ideal, which, as cited before, were described as "a positive principle of evaluation, in the sense of a prototype or a perfect form". David Brown has explicated this idea in early astronomical and celestial divinatory texts concerning cyclical astronomical phenomena and the arithmetical schemes devised for reckoning with them in a divinatory context.⁸⁰

Already from the earliest periods an interrelated group of ideal units of time reckoning was devised for accounting purposes, and because those units came to undergird early Babylonian astronomy as well as the tradition of *Enūma Anu Enlil* omens, they would remain in the cuneiform scholastic tradition for two millennia.⁸¹ This group of ideal units focused on the 360-day year of 12 30-day months. Of the local Sumerian calendars in the Ur III period, where real month lengths varied, calendar months in the city of Nippur became standard and were later taken over as the month names of the ideal calendar (12 30-day months = 1 ideal year) common to the scholarly traditions of the astral sciences, both astrology (celestial and natal divination) and astronomy (MUL.APIN, *Astrolabes*), prior to ca. 500 BCE, and even later in some cases.

Already in the Old Babylonian Period, the variation in length of daylight was understood as deviations from the ideal dates of the equinoxes. The earliest evidence for the quantitative model for daylight length is found in an Old Babylonian text (BM 17175+).⁸² In four sections, one for each schematic season, the text gives the model as follows:

[On the 15th of Addaru, 3 (minas, or 3,0 UŠ) are a wa]tch of the day, 3 (minas, or 3,0 UŠ) are a watch of night; [Day and night] are equal. [From the 15th of Addaru to] the 15th of Simanu is 3 months. [On the 15th of Simanu, the night] transfers 1 (mina, or 1,0 UŠ) of the watch to the day. [... 4 (minas, or 4,0 UŠ) is the wa]tch of the day, 2 (minas, or 2,0 UŠ) is the watch of the night.⁸³

This model of the ideal year assigned the equinoxes and solstices to the midpoints, or 15th day, of months XII, III, VI, and IX. For each schematic season, or quadrant in the ideal year, the length of daylight shifted by 1 unit. Therefore, from vernal equinox

80 Brown 2000a, 113–122 for his description of 'period schemes', and 146–155 for their impact on celestial divination.

81 Englund 1988; Brown 2000b; Brack-Bernsen 2007; Britton 2007, 117–119. For month lengths and the

Babylonian calendar, see Britton 2007 and Steele 2007, 133–148.

82 Hunger and Pingree 1989, 163–164.

83 Text enclosed in square brackets is restored. Text in parentheses is a translator's gloss.

to summer solstice, the length of day increased by '1'; from summer solstice to autumnal equinox, daylight decreased by '1', and so on, producing a model for the change in the length of daylight in which the ratio of longest to shortest day length was 2 : 1. Thus: $3 (VE) + 1 = 4 (SS) - 1 = 3 (AE) - 1 = 2 (WS) + 1 = 3 (VE)$. This scheme is not practical for the geographical latitudes of Mesopotamia, but it is the simplest, indeed most elegant, way to model the experience of increasing and decreasing durations of daylight around two extremes (summer and winter solstices), provided the model is constructed on the ideal year. The mean value was expressed in sexagesimal notation as the number 3, i.e., 180 (3×60), and represented one-half of the circle of the day (360 degrees) when daylight and night were of equal length (180 degrees).

Another group of astronomical texts, with exemplars from the Middle Babylonian and Middle Assyrian periods, and now called 'astrolabes', arranged in circular or list form three groups of heliacally rising stars month by month together with numerical values for the length of day in those months. This group of texts provided the full complement of numerical values that made up the model attested in the Old Babylonian Example cited above. In Tab. 1, 'C' designates the value for length of daylight, taken as constant for the duration of the month.

Again it is clear that the mean value of the table is 3 (= 3,0), representing the length of daylight (or night) at the equinoxes.

From the standard Assyro-Babylonian astronomical compendium known as MUL.APIN, preserved from exemplars dating to the 7th century BCE, statements concerning length of daylight show that the Old Babylonian model for variation in daylight (Tab. 1) was still being transmitted. The text says, for example:

ina Nisanni UD.15 3 mana maṣṣarti mūši 12 UŠ napābu ša Sin

On the 15th of Nisannu (= Month I) a nighttime watch is 3 minas; 12 UŠ the (daily retardation of the) rising of the moon.⁸⁴

This gives the same value for daylight length at the vernal equinox, but it occurs in the first month *Nisannu*, rather than the twelfth month *Addaru*. The remaining cardinal points of the year were also shifted up one month, from XII to I for the vernal equinox, as just seen, from III to IV for the summer solstice, and so on. This shift in the calendrical reckoning of the cardinal points did not alter the underlying schematic model for daylight length variation.

Another section of MUL.APIN clarified the scheme for an entire ideal year.⁸⁵ The section not only spelled out the lengths of night for each ideal month but also included the value for the visibilities of the moon, whether from rising or before setting.

⁸⁴ See Hunger and Pingree 1989, 102: Tablet II ii 44. My parentheses.

⁸⁵ MUL.APIN II ii 43–iii 12.

Month	C (in mana)	C in UŠ	= Hours	Cardinal Points
XII	3;0	3	= 12 hr	Vernal Equinox
I	3;20	3,20	= 13 hr 20'	
II	3;40	3,40	= 14 hr 40'	
III	4;0	4	= 16 hr	Summer Solstice
IV	3;40	3,40	= 14 hr 40'	
V	3;20	3,20	= 13 hr 20'	
VI	3;0	3	= 12 hr	Autumnal Equinox
VII	2;40	2,40	= 10 hr 40'	
VIII	2;20	2,20	= 9 hr 20'	
IX	2;0	2	= 8 hr	Winter Solstice
X	2;20	2,20	= 9 hr 20'	
XI	2;40	2,40	= 10 hr 40'	

Tab. 1 Astrolabes' scheme for variation in daylight length. (The relation between the measures for C in the second and third column is 1 *mana* = 1,0 UŠ. Mana was a unit of weight, for measuring water into the water clock. 1 UŠ = 4 time degrees.)

MUL.APIN's interest in the night lengths and visibilities of the moon is followed by a short passage explaining the calculations for the duration of lunar visibility using a 'difference' coefficient (*nappaltu*), e.g.,

40 NINDA nappalti ūmi u mūši ana 4 tanaššīma 2,40 nappalti tāmarti tammar
 multiply 40 NINDA, the 'difference' of daylight and night, by 4 and you will
 find 2,40, the 'difference' of the visibility of the moon.⁸⁶

The same numerical values for daylight lengths according to the model of MUL.APIN and the Astrolabes also underlie the calculation of the duration of visibility of the moon at night, found in Tablet 14 of the omen series *Enūma Anu Enlil*.⁸⁷ The duration of lunar visibility was of course related to the length of night, and the value given as the IGI.DU₈.A = *tāmartu* 'visibility' of the moon is figured as $1/15$ th of the length of night. For example, in Month I day 1, day = 3 and $1/6$ and night = 2 and $5/6$. On this day the IGI.DU₈.A of the moon is given as 11;20, the result of dividing the length of night

⁸⁶ MUL.APIN II iii 15 (slightly modified translation from Hunger and Pingree 1989, 108).

⁸⁷ Al-Rawi and George 1991/1992, 52–73.

by 15. For an equinoctial day, e.g., Month I, day 15, the IGI.DU₈.A of the moon is given as 12. Night length at the equinox = 3,0 (moon rises at sunset and rises at sunrise and is visible the entire night, for 180°). The value for IGI.DU₈.A is 12, which is 1/15 of 3,0 (= 180°). The length of night was always the complement to the length of day, where on any given night of the schematic year, day + night = 12 *bēru* = 24 hours = 360 UŠ (360 degrees of time = 24 hours). Values were given in monthly intervals, but a statement from MUL.APIN confirms that these values could also be interpolated on the basis of semi-monthly values for the length of the day: “The Sun which rose towards the North with the head of the Lion turns and keeps moving down towards the South as a rate of 40 NINDA per day.”⁸⁸ 40 NINDA per day is the result of the regular increments or decrements of 10 units each ½ month, i.e., in 15-day periods. Further interpolations could be made by dividing by 30 (the number of days in a schematic month) the semi-monthly differences between values for the daily retardation of the moon throughout the schematic year, tabulated in *Enūma Anu Enlil* Tablet 14.⁸⁹ These quantitative descriptions were results of modeling, not measuring, the variation in length of daylight and the underlying structure was the ideal year, 12 30-day months or 360 days.

It seems to me that the numerical mean value in this ideal scheme, the value 3 (3,0 = 180), as the representation of one-half of the circle of the day, was not simply a derived mean value from the schemes for daylight length and duration of lunar visibility, but played a determining role in the construction of those schemes.

David Brown drew attention to the role of ideal schemes,⁹⁰ showing as well that the numerical value assigned to the ideal, as construed in accordance with those schemes, and deviations from the ideal, was the basis for interpreting propitious and unpropitious signs. This shows the consistency of the scholars’ approach among the various domains of signs, and how the notion of a norm was instrumental to the entire system. I would further concur with Brown’s insight that the categories by which the heavenly phenomenal world was structured in celestial omens, were, in his words, “devised in order to make the sky above interpretable”, and that “it [the phenomenal world] was categorised in this manner *in order* that it could be encoded with signs.”⁹¹

Brown’s insight can be applied more widely within cuneiform knowledge corpora. As noted above, phenomena of the liver and extra that deviated from normal were studied as ominous signs. Those appearances that fell within the range of normal were also counted as omens, signaling generally propitious events. As shown above, even some *izbu* omens had elements described as ‘normal’.

88 MUL.APIN II i 11–12 (translation from Hunger and Pingree 1989, 72–73).

89 Al-Rawi and George 1991/1992, 58.

90 See note 80 above.

91 Brown 2000a, 153. My insertion, emphasis by Brown.

The foregoing has sought to explore the way in which norms and anomaly were important components of cuneiform scribal thinking about the world of phenomena. Given the necessity of making meaning from signs, these ordering principles aided omen divination in the interpretation of the perceived, experienced, or imagined phenomena of the scribes' spheres of interest. While central to omen divination, the use of ideals and anomaly was not limited to the divinatory enterprise. It is also found in early Babylonian astronomical texts wherein the approach is entirely consistent with that of divination. It seems significant that the establishment of norms against which to define anomaly was employed in the understanding and interpretation of both physical and non-physical phenomena, both terrestrial and celestial. Perhaps, however, in the 'empire of celestial knowledge' the further development of this principle would see its most significant gains.

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