

In the Wake of the Compendia

Science, Technology, and Medicine in Ancient Cultures



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Volume 3

In the Wake of the Compendia

Infrastructural Contexts and the Licensing of
Empiricism in Ancient and Medieval Mesopotamia

Edited by
J. Cale Johnson

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The question of the formal patterning and institutional regimentation of textual compendia, particularly in the earliest phases of scientific thinking in the ancient Near East, was the primary impetus for a panel held at the Annual Meeting of the American Oriental Society in Portland, Oregon, on March 15th, 2013. That panel, entitled ‘Empiricism in Mesopotamian Technical Literature’, consisted of seven of the ten contributors to this volume and the panel discussions that day are well reflected in the individual contributions. Thanks to Na’ama Pat-El for fitting the panel into the American Oriental Society meeting and Tzvi Abusch for chairing the session. Rochberg, Raggetti and Lehman were, after the fact, asked if they might contribute papers in order to contextualize larger issues or fill major thematic gaps and they graciously agreed to do so. I would like to thank all of the participants for their contributions to the volume.

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J. Cale Johnson

Berlin, May 15th, 2015

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Introduction

‘Infrastructural Compendia’ and the Licensing of Empiricism in Mesopotamian Technical Literature

1 Introduction

Institutions are real, even in the absence of a brick-and-mortar foundation or articles of incorporation, and as it happens they are often the most visible component of the complex networks and arrays of human interaction that we speak of as ‘scholarship’ or even ‘science’. As institutions (and the social bodies they house and propagate) have become one of the central objects of critical reflection in the last few decades, it has forced students of antiquity to think carefully about the institutional contexts of both ancient and modern scientific research. For the authors who have contributed to this volume, however, antiquity is a bigger and more splended thing than the Graeco-Roman arena that usually defines the early history of science. For many of the participants in this volume it extends from the origins of writing in Mesopotamia and Egypt through the Graeco-Roman materials down to the great synthetic compendia that were produced in the Hellenistic, Abbasid and Byzantine periods. In speaking, therefore, of ‘Mesopotamian technical literature’ in reference to such a wide and multifarious time and space, I am attempting to neologize an existing term, Mesopotamia, and to do so in a mildly provocative way. One of the central hypotheses advanced in this volume is that the shape of institutional life in Mesopotamia and the type of compendia that fit naturally into institutional contexts in Mesopotamia changed relatively little over the four and half millennia for which we can follow the documentary record in the land between the two rivers. More concretely, the contributions assembled in this volume also suggest that the culture of compendia in Mesopotamia, whether the compendia in question are written in cuneiform, Talmudic Aramaic, Syriac or Arabic, remained relatively constant, and furthermore that the highly institutionalized life of Mesopotamian compendia must be contrasted with the largely non-institutional character of scientific materials in earlier phases of the Graeco-Roman world.

This hypothesis of Mesopotamian continuity, where ‘Mesopotamia’ is understood expansively to include the period of time between the origin of writing (ca. 3300 BCE) and the fall of the Abbasid Caliphate (1258 CE), necessarily suggests that emblematic textual phenomena such as the edition of the Babylonian Talmud and the Abbasid Translation Movement represent a specific approach to the curation of knowledge that shares essential features with the textual practices of earlier cuneiform cultures. The constant operating throughout these long millennia is the

situation of textual practices within largely institutional contexts, typically funded by the crown or other political entities and oriented to the creation of a professional class of technical specialists. This emphasis on institutional contexts and the microsociology of professional and disciplinary subcultures is to a great degree in response to what Ben Kafka has recently called the ‘the technical turn in the humanities’. As Kafka himself goes on to emphasize:

Inspired largely by science studies, humanists have started to think seriously about the technics of knowledge. ... we can probably trace this approach back to Bruno Latour’s essay ‘Visualization and Cognition: Drawing Things Together.’ ... A bureau is, in many ways, and more every year, a small laboratory in which many elements can be connected together just because their scale and nature has been averaged out: legal texts, specifications, standards, payrolls, maps, surveys. Latour’s call for an ‘ethnography of inscription’ has fulfilled its intellectual promise time and again, not least in Latour’s own study of jurisprudence [Latour 2010]. Through subtle reconstructions of knowledge infrastructures and actor networks, the ethnographer is able to reconstruct the law’s specific mode of truth production in all of its wondrous tedium.¹

Although the technical turn should, in my view, be seen as a positive development, it poses the real danger that we find ourselves mired in minutiae that do not serve broader intellectual or research goals. Thus, rather than adhering to the current fascination with textual artifacts and their limitless materialities, in this volume we pursue a number of new synthetic research questions: How do technical compendia operate in the cuneiform and post-cuneiform Near East? How do textual authorization and replication constrain nascent empiricism? Can we postulate a distinctive ‘Mesopotamian’ paradigm in the early history of scientific thinking?

Although we are often bombarded with new critical or theoretical terminology, I would like to focus initially on just two ideas that have already developed a recognized place in the theoretical literature and that are also of special relevance to Mesopotamian technical literature: the *infrastructural* character of Mesopotamian compendia and the role of *citation* in the formation and elaboration of infrastructural compendia. Each of these terms will be unpacked below, but it should also be emphasized that these features of Mesopotamian compendia have been recently thematized *avant la lettre* in the work of Eva Cancik-Kirschbaum, who builds in part on Oppenheim’s take on the role of the Mesopotamian lists in the technical disciplines.² Oppenheim himself used the term ‘operational’ in descriptions of his own attempts to sketch out the ‘use’ of lexical lists, perhaps even as a form of modest self-criticism, but with the advances in speech act theory and theoretical developments of Latour and Bourdieu, it is remarkably prescient. More recently, Cancik-Kirschbaum has emphasized that Mesopotamian lists were always situated in complex discursive situations in which the written medium of the list or

¹ Kafka 2012: 110; see Latour 2013 for his most recent theoretical statement.

² Cancik-Kirschbaum 2010, citing in particular Oppenheim 1977: 248.

compendium must be continually juxtaposed to the oral discussions and metalingual comments, viz. *die operationelle Ebene*, that regularly attached to the written artifact.³ This overall approach to Mesopotamian scholastic materials is therefore, it must be said, quite different from the approach found in Elman's recent generalizations about the nature of scholastic thinking in Mesopotamia, in which the non-existence of *written* argumentation is taken as a sign that second-order thinking was largely non-existent in Mesopotamia.⁴

Simplistic readings of Mesopotamian textual remains have often taken the written artifact in itself as a more-or-less complete script of a discursive interaction, as if a Babylonian list of medical recipes operated along the same discursive principles as a Platonic dialogue. But of course nothing could be further from the truth. Mesopotamian lists and skeleton compendia functioned as agenda or syllabi, meant to provide the teacher with a series of possible topics in a pedagogical setting. Perhaps the best example of this is the interpretation of a list of plants, viz. drugs, that occurs in the Sumerian literary text known as *Enki and Ninhursag*, lines 199–219.

⁽¹⁹⁹⁾ He (= Enki) said to his minister Isimud: ⁽²⁰⁰⁾ "I have not determined the destiny of these plants. ⁽²⁰¹⁾ What is this one? What is that one?"

⁽²⁰²⁾ His minister Isimud had the answer for him.

⁽²⁰³⁾ "My master, the 'tree' plant," he said to him, ⁽²⁰⁴⁾ he cut it off for him and Enki ate it.

⁽²⁰⁵⁾ "My master, the 'honey' plant," he said to him, ⁽²⁰⁶⁾ he pulled it up for him and Enki ate it.

⁽²⁰⁷⁾ "My master, the 'vegetable' plant," he said to him, ⁽²⁰⁸⁾ he cut it off for him and Enki ate it.

⁽²⁰⁹⁾ "My master, the alfalfa grass (?)," he said to him, ⁽²¹⁰⁾ he pulled it up for him and Enki ate it.

⁽²¹¹⁾ "My master, the *aštaltal* plant," he said to him, ⁽²¹²⁾ he cut it off for him and Enki ate it.

⁽²¹³⁾ "My master, the *aštaltal* plant," he said to him, ⁽²¹⁴⁾ he pulled it up for him and Enki ate it.

⁽²¹⁵⁾ "My master, the ... plant," he said to him, ⁽²¹⁶⁾ he cut it off for him and Enki ate it.

⁽²¹⁷⁾ "My master, the *amharu* plant," he said to him, ⁽²¹⁸⁾ he pulled it up for him and Enki ate it.

⁽²¹⁹⁾ Enki determined the destiny of the plants, had them know it in their hearts.⁵

Although situated in a primordial time and space before the invention of writing, this passage 'authorizes' in some sense the use of lexical lists to transmit technical information, while at the same time presenting us with the simplest possible entextualization of a list of pharmaceutical plants.⁶ Needless to say at this moment of quasi-baptismal reference, with Enki (the god of technical knowledge in Mesopotamia) as the interlocutor, there is no possibility of disputation. The early lexical lists

3 Cancik-Kirschbaum 2010: 25–27.

4 Elman 2014, especially pp. 19–34; one could cite various passages, but "the lack of *records* of legal discourse must be ascribed to the relative lack of importance given to this activity in ancient Mesopotamian culture" (Elman 2014, 31, emphasis added) is emblematic.

5 Translation after ETCSL.

6 Entextualization in the sense of the term put forward in Silverstein and Urban 1996, namely a real-time verbal 'reading' of the material text-artifact in a definite social setting. For a rather different approach, see the discussion of canonical verbalisations in Hyman 2006.

therefore represent an agreed upon sequence of topoi, and while individual scholars could and (as much later commentaries show) did interpret these lists in radically different ways, the mere fact that the members of a given profession or technical specialization agreed on a fixed ‘curriculum’ or set of topoi endowed the written manifestation of the curriculum with authority and even a distinctive type of agency.

The infrastructural character of Mesopotamian compendia is most visible, however, in the total absence of controversy or even polite disagreement within the boundaries of the written text. This feature of Mesopotamian compendia stands in contrast to many types of Graeco-Roman technical compendia, which are often explicitly framed as the point of view of a named author and include direct challenges to other practitioners.⁷ This contrast, though by no means absolute, does suggest that the oral-written divide was definitive, at least in the earlier phases of the cuneiform textual record.⁸ The infrastructural text was written, presumably memorised by all card-carrying members of a given profession, and could only be modified by reconfiguration or addition, never deletion or replacement.⁹ The individual entries in these compendia served as points of departure for the kind of perspectival or agonistic debates that regularly appear in later Graeco-Roman treatises, but in the heavily professionalized technical disciplines in Mesopotamia perspectival interpretations and commentaries were not, as a rule, allowed into the written text.

2 The infrastructural compendium

If we adopt a straightforward definition of ‘compendium’ such as ‘a collection of concise but detailed information about a particular subject’ (OED), an infrastructural compendium might be distinguished from other types by its use of sequences of words, phrases or brief descriptions that serve as a skeleton text or agenda for oral instruction or debate within concrete historical institutions.¹⁰ This type of compendium served as a shared common ground for all members of a given profession or other technical specialization. Properly credentialed practitioners could presumably maintain their own interpretations of certain facts or theoretical

⁷ See, for example, Asper 2007; Doody 2009; van der Eijk 2010 and the papers collected in König and Whitmarsh 2007.

⁸ For a general discussion of how anonymous, impersonal compendia fit into the Greek technical literature, see in particular the section on *Grundannahmen zu Wissenschaftstexten* in Asper 2007: 27–45.

⁹ This is not meant to deny the reality of extract tablets or pedagogical materials, merely to emphasize that these traditions were cumulative rather than categorical; cf. Larsen 1987.

¹⁰ Obviously I am stressing the on-going, normative character of a social practice deemed institutional rather than the scale or physical setting of such an institution.

generalizations as long as they agreed to a fixed repertoire of *infrastructural* compendia. These compendia are therefore infrastructural in the precise sense of the term as recently defined by Brian Larkin:

Infrastructures are built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space. As physical forms they shape the nature of a network, the speed and direction of its movement, its temporalities, and its vulnerability to breakdown.¹¹

And while in colloquial usage infrastructure tends to refer to what we might call banal or non-semiotic networks (electricity, water and sewage lines, for example), in just the last couple years a number of theorists have rightly seized upon the fact that there is no profound difference between the internet and a natural gas pipeline. One of the funny things about infrastructures, as opposed to other forms of technology, is that “they are present to the senses, yet they are also displaced in the focus on the matter they move around.” As Larkin puts it, “We often see computers not cables, light not electricity, taps and water but not pipes and sewers.”¹² And it is precisely this difference in focus that distinguishes an infrastructural compendium from other written manifestations of technical knowledge. While modern-day researchers must be largely satisfied with reconstructing the plumbing, the real life of these texts was in the *oral* commentaries, scholastic disputes and disciplinary practice that they set in motion.

Seen in this light, the complex stratification of scribal education in cuneiform that begins with the physical manipulation of the stylus, impressing wedges in the surface of a clay tablet, reaches its apogee and culmination with the inculcation of one of more disciplines, including both their written and their non-written elements. Yet it is precisely at this point that we can see the fundamental contrast between the heavily formalized process of memorizing the *loci communes* of a profession and the inevitable debate and disputation that must have surrounded the infrastructural materials. One of the few places where we occasionally find opposition and differences of opinion within the written record is in the letters and reports of scholars in the service of the royal court.¹³ The key difference between the infrastructural compendia in cuneiform and what we might term post-infrastructural written compendia such as the Babylonian Talmud (hereafter the Bavli) is that the oral disputations that remained almost entirely oral throughout much of the history of cuneiform scholasticism – culminating in occasional high-stakes confrontations at court – are translated into a written medium and appended to the infrastructural

¹¹ Larkin 2013: 328.

¹² Larkin 2013: 329.

¹³ See in particular Robson’s discussion of the *bārû* (2011), but in fact examples of contradiction occur occasionally throughout SAA 10 such as no. 23 “Refuting a Sighting of Mercury” (Parpola 1993: 18); nonetheless, it is telling that the person whose statement is being critiqued is not explicitly named. For an early discussion of orality in Neo-Assyrian scholarly circles, see Elman 1975.

text. The iconic form of the Talmudic page, consequently, provides us with a diagrammatic representation of both the infrastructural text (the Mishnah in the Bavli) and the discursive exposition that surrounded it. Crucially, however, the common feature of both the infrastructural approach of cuneiform scholasticism and the post-infrastructural features of later compendia such as the Bavli or the Zand is that they were meant to be used in an interactive setting, not in isolation.

The other side of the infrastructural coin, at least when it comes to Mesopotamian compendia, is their reliance on a wide variety of different citational practices. Thanks to Nakassis' recent restatement of the central issues in work on citation and citationality, we can now trace the crucial links between Austin's speech act theory, Derrida's critique of Searle and recent discussions of performative speech in institutional contexts.¹⁴ The common denominator for all of these discussions is the role that citation plays in reorganizing existing materials into new types of oral-written hybrids (written infrastructural text + orally mediated commentaries or dialogue) and then investing these oral-written hybrids with institutional authority. While there may be a few isolated moments in the history of cuneiform technical compendia in which information was communicated without passing through an oral intermediary (viz. the copying of an old tablet without even attempting to comprehend its contents), this was certainly not the norm. Instead, we must imagine that one of the primary activities of technical specialists, as they worked through a written text, was to point out the citational relationships between elements within the written text, elements in other textual compendia and conventional *topoi* in the oral discussion of the written text. Minuscule fragments of this complex oral-written citational hybrid were occasionally added to otherwise standard compendia in the form of written glosses and other marginalia, and to the degree that these can be identified and understood they represent crucial evidence for the multimodal oral-written reality that surrounded infrastructural compendia. But more generally the great empirical difficulty in discussions of both cuneiform and post-cuneiform Mesopotamian compendia is that we must use clues embedded in the written, text-artifactual record to reconstruct contexts of use in which the written text served as a point of orientation, even though it was not the primary medium for communicating information. The real medium of communication in the context of an infrastructural compendium is the citation, typically uttered in the oral exposition but pointing to a specific element in the written textual array of the compendium.

The emphasis that I would like to place on the institutional contexts in which infrastructural compendia come into use derives in a rather straightforward way from discussions of performative speech and its contexts of felicitous occurrence, first in linguistic anthropology and later on in Searle's attempt to rehabilitate

¹⁴ Nakassis 2013.

speech act theory with an institutional component.¹⁵ While the anthropologists have not generally focused on institutions per se, seeking instead to develop a general account of the power of speech in different kinds of contexts, Searle has been the most important systematizer of speech act theory in the wake of Austin's famous *How to Do Things With Words*.¹⁶ Largely one suspects in reaction to Rosaldo's withering critique of his intentional model of speech acts, Searle postulated a specifically institutional context for successful speech acts in his 1995 book *The Construction of Social Reality* and in a paper entitled "What is an institution?"¹⁷ And while Searle's particular take on performativity and collective intentionality has not been accepted as a *communis opinio*, the basic idea shared by all of these different approaches is fairly straightforward: different types of validity or truth (denotational, scientific, legal, religious, etc.) are rooted in the acceptance of a speech act as a particular type of action by an institution of some kind. Other research traditions have sought to explain the complex relationship between speech acts, institutional contexts and the social values that they are capable of generating in rather different terms, but what they have in common is an emphasis on the highly constrained and carefully demarcated social contexts in which values like truth, effectiveness or objectivity are authorized.¹⁸

The best evidence for a complex web of citational relationships between written, infrastructural compendia and their oral exposition, at least throughout the length and breadth of the cuneiform written tradition, is the presence of glosses and other marginalia interspersed in an *ad hoc* way throughout otherwise standardized texts. Glosses and other *ad hoc* marginalia have often been mentioned as a particularly rich area for the identification of the oral surround within which written text-artifacts were entextualized and manipulated: Niek Veldhuis, for example, has pointed to clear evidence for this kind of metalinguistic notation in the context of Old Babylonian period acrographic lists such as Lu = ša or Izi and historians of cuneiform mathematics have often used marginal or irregular notations for understanding the early history of place value notation.¹⁹ Yet these examples,

15 See Silverstein 1993 on metapragmatic function within linguistic anthropology; for Searle's efforts to rehabilitate orthodox speech act theory, see Searle 1995; 2005.

16 Austin 1962.

17 Rosaldo 1982, although Searle does not cite Rosaldo's critique; Searle 1995 and 2005 respectively.

18 Readers familiar with the Kripke's causal theory of reference (Kripke 1980; Putnam 1975), the famous Twin Earth problem (Putnam 1973; 1975) or Tomasello's work on joint attentional scenes (Tomasello 1999; Tomasello *et al.* 2005; Moll and Tomasello 2006) will certainly recognize that many of the same issues are at stake in these accounts. Of course as soon as we mention terms such as 'truth' and 'objectivity' we are caught up in broader methodological issues; for some orientation to these broader issues, see the 2012 MPIWG Preprint on historical epistemology entitled *Epistemology and History: From Bachelard and Canguilhem to Today's History of Science*.

19 Friberg 2005; Robson 2008: 77–79.

however illustrative of the subtle intermeshing of the oral, written and procedural components of scribal practices, are not oriented to the type of technical compendia that we are focusing on here. Mark Geller’s contribution to this volume (“Encyclopedias and Commentaries”), however, in which he investigates two different versions of a list of *materia medica* (KADP 2 and KADP 4), represents one of the most important examples of this type of phenomenon. Alongside the compendia of *materia medica* that we find in KADP 2, the focus of Geller’s paper is actually on a shorter extract tablet (KADP 4) that includes an initially bewildering range of glosses and interpolations such as the following:

8	ú ^z a-mar sa ₅ sa-a za-mar sig ₇ ^{a-nu-[q]u}	ú ^{ak} -tam tur-a-zu du ₁₁ -ga
9	ú ^{hab} -ši-lu-ur-ga	ú ^{min} nim. ^{e-lam5-} ki ^e
10	ú ^{ti} -la-a-kur-ta	ú ^{min} Gu-te ^{1e}
8	‘immediately red, immediately green’-plant = <i>aktam</i> -plant, also called <i>tur’azu</i>	
9	<i>habšilurga</i> -plant	ditto, Elamite
10	<i>tillakurtu</i> -plant	ditto, Gutian

Here we see technical scholasticism at work, honing in on the philological and linguistic details of a single pharmacological plant (Akk. *aktam*, an extremely common ingredient in the therapeutic materials) in no less than three distinct ancient Mesopotamian languages: Akkadian, Elamite and Gutian. As Geller puts it, the numerous glosses and interpolations in KADP 4 almost seem to be “commenting on the larger tablet,” but that “we are back in eighth-century Assur, before commentaries became a well-established academic genre, and that KADP 4 is a type of proto-commentary in which glosses represent keywords for hermeneutical explanations which we otherwise lack” (M. Geller in this volume). Here in the annotated extract tablet KADP 4 we see the boundary line between oral and written, which also served as the usual demarcation between object language and metalanguage in the web of citations surrounding an infrastructural text, shifting every so slightly and, in the process, giving us a rare glimpse of the type of metalinguistic commentary that always surrounded an infrastructural text.

Within such a paradigm, the key difference between the infrastructural text and its oral exposition was the medium in which each of these components was encoded: the infrastructure was encoded in writing and a would-be member of a profession gained entrance through the process of memorizing and reinscribing the infrastructural compendium. Crucially, however, there is no reason to believe that memorization and material iteration of the infrastructural compendium was the *raison d’être* of the entire process. Instead, it must be seen as a shared common ground for the institution or the social group in which it operated. The role of infrastructural texts in the astrological disciplines is made particularly clear in Mathieu Ossendrijver’s contribution to the volume (“Compendia and Procedures in the Mesopotamian Astral Sciences”). Ossendrijver provides us with a detailed

overview of some of the most important compendia in the astral sciences, including EAE 14, MUL.APIN and the astronomical diaries, viz. “highly standardized compilations of astronomical, meteorological, economic and historical data for intervals of six months” and the Seleucid period goal-year compendium TU 11. In the second half of the 1st millennium BCE the astronomical sciences represented the most advanced of the technical disciplines in Mesopotamia and, as Ossendrijver notes, the astronomical diaries must be seen as the most complex example of compendia-building in the Mesopotamian world:

Each diary is the end product of a complex data management operation in which short-term reports with different types of information, obtained from different scholars, were collected, evaluated, processed and compiled into the format based on six month intervals. (Ossendrijver in this volume)

Here Ossendrijver clearly argues for both a complex citational relationship between the astronomical diaries and their sources, but also emphasizes that blocks of material that were originally generated in one discursive environment could be recontextualized in other types of compendia. In the absence of the type of *ad hoc* marginalia that M. Geller discusses, the movement of blocks of material from one compendium to another often represents one of our best pieces of evidence for the history of Mesopotamian compendia. Ossendrijver also discusses the quotation of entries from *Enuma Anu Enlil* in the letters of Neo-Assyrian scholars and in particular the numerical tables that appear in *Enuma Anu Enlil* (EAE) 14, a compendium that Francesca Rochberg also discusses later on in the volume. Although EAE 14 was clearly an organic element of the *Enuma Anu Enlil* series (“an integral part of the subseries ‘Appearances of the Moon’ and not an astronomical insertion disconnected from the omens” as Ossendrijver notes), it is unusual in that it was loaned into an Aramaic-speaking technical context, where it was translated into Aramaic and subsequently found its way into the Aramaic Astronomical Book (4Q208–4Q211) at Qumran, now discussed at length in Drawnel’s new edition of the primary sources.²⁰

The transmission of cuneiform technical compendia such as EAE 14 into various Aramaic-speaking technical ateliers – both while cuneiform was still accessible in some form but also after its demise in the first few centuries CE – represents a piece of one of the most complex questions for the early history of Mesopotamian technical compendia: the reception of Mesopotamian materials in Aramaic. Specialists in Second Temple Judaism have increasingly focused on a wide range of technical materials that have been recovered from Qumran and the Genizah materials, and Lennart Lehmann situates his contribution to the volume (“*Listenwissenschaft* and the Encyclopedic Hermeneutics of Knowledge in Talmud and Midrash”)

²⁰ Drawnel 2011.

within this new research tradition.²¹ But rather than limiting himself to Second Temple materials Lehmhaus investigates a wide range of list making processes and formal structures in the Babylonian Talmud (the Bavli) in the broader context of early Jewish scientific thought. Lehmhaus's discussion includes both materials that have often been interpreted as extraneous but were still incorporated into the Bavli such as the Gittin Book of Remedies (Gittin 68b–70a) as well as lists and compendia that were clearly formulated within the Rabbinic tradition itself. Mark Geller has argued that the Gittin Book of Remedies must derive from Akkadian therapeutic materials due to the astonishing number of Akkadian loanwords that can be identified in the text.²² As Lehmhaus emphasizes, however, the Gittin Book of Remedies is carefully woven into its surrounding context in the Bavli, so we cannot see “this textual block as an alien element” (Lehmhaus in this volume). At the same time, Lehmhaus also focuses on a number of distinctively rabbinic list-making practices or compendia such as Seder Eliyahu Zuta (The Minor Order of Elijah, “a unique and multifaceted work that skillfully combines different genres, formats and styles of discourse into a dense ethical discourse” and the “midrash of lists” to be found in traditions such as Midrash Ma'asseh Torah (Midrash of the Work of Torah), as in the following example:

Three things [behaviors] will bring a man to wealth: calculation on prayer, faithful business with other men, humbleness towards his household. Some even say: one who has knowledge. As it is said: *by knowledge the rooms are filled with all precious and pleasant riches* (Prov. 24:4). (Chuppat Eliyahu, p. 165)

Here the formal history of citational practice that began with infrastructural compendia in Mesopotamia comes full circle as groups of orally-mediated rabbinic maxims that came into existence in the context of oral exposition re-enter the written, textual record in the form of a new compendium known as Chuppat Eliyahu.

3 Licensing empiricism: replication and authority in Mesopotamian technical literature

If the picture of institutional contexts and the citational practices that inhabit them – as outlined in the preceding section – can be taken provisionally for granted, it immediately raises questions of persistence, iterability and replication. Larkin's definition of infrastructure already speaks of its role in defining the speed

²¹ See, for example, Langermann 2002; Leicht 2006; Reed 2007; Popović 2007; Ben-Dov 2008; Bohak and Geller 2013; Elman 2014; Reed 2014.

²² Geller 2000 and 2004.

and direction, temporality and vulnerability of technical information as it moves through a network, but in the absence of ethnographic observations how can we reconstruct the microsocial practice that surrounded ancient technical compendia? Two recent collections of papers on Graeco-Roman technical literature have adopted an explicitly literary or rhetorical approach to their structure, largely inspired by van der Eijk's seminal paper "Towards a Rhetoric of Ancient Scientific Discourse".²³ One of the key advances made possible by this approach is the recognition that certain types or genres of technical literature arise in, or alternatively, meet the needs of a specific context of transmission. The Aristotelian *pragmateiai* – sometimes spoken of as 'lecture notes' – are one of the best known examples of this in that they were apparently generated in discussions among specialists rather than for outside consumption. Föllinger has emphasized, however, that even if "[t]he manner of representation produces the impression of being present in a dialogue, ... no imitation of a dialogue takes place, as in Plato's works, or in Aristotle's dialogues, the 'exoteric' writings which he produced for a wider audience."²⁴ The careful distinction between dialogue and dialogic materials (and the association of these two types of text with different audiences) is certainly a welcome point of view vis-à-vis the Graeco-Roman materials. It must be emphasized, however, that Föllinger's dialogic distinctions cannot be extended in Mesopotamian infrastructural compendia and the dialogic speech that enveloped them.

Although we are perfectly willing to recognize that the profoundly monological compendia that we are looking at here operated within a bustling, non-written dialogic context, we must attempt to locate concrete traces of this dialogic context in the written texts themselves rather than simply positing its existence. One of the most promising indices of dialogic context within the written textual array of infrastructural compendia is the role of metapragmatic descriptors or rubrics in communicating the reliability or authority of a given block of textual materials. These statements of epistemological classification ("tested", 'tried', 'checked', transmitted or recommended [by a famous specialist or patient]) have largely escaped the notice of present-day historians, yet it is increasingly clear that the addition of these seemingly trivial labels to technical compendia played a central role in their replication and authorization. Though elements of this approach (with its emphasis on the contrast between object language and meta-language) can already be discerned in recent investigations of literary genres and their reception, I would like to suggest that Urban's work on the replication of native transcriptions in ethnographic contexts provides a particularly useful perspective on how these epistemological labels or efficacy statements generate textual authority.²⁵

²³ The two collections are Doody *et al.* 2012 and Asper 2013, while the van der Eijk paper is van der Eijk 1997.

²⁴ Föllinger 2012: 239.

²⁵ Urban 1996; see also the narratological approach to 'codification' in Schemus 2011.

Rooted in anthropological discussions of the theory-laden character of transcription, Urban studied two native tradents of Shokleng mythological lore as they transcribed or repeated audio recordings of this material.²⁶ The younger of the two (Nānmla) transcribed the myths in written form, while the senior tradent (Wāñpō) repeated what he heard on the recording, which Urban then transcribed. Urban found that the two copies produced by Nānmla and Wāñpō differed from the original in very specific ways and that the differences between the two copies were almost entirely determined by the (as)symmetrical power relationships between originator and copier:

The difference can be summed up by saying that Wāñpō's copies were less faithful reproductions of the originals than were Nānmla's. Wāñpō was an elder, more or less on a par with the originators, and he considered himself to be my [= Urban's] mentor. Nānmla, by contrast, was a young man, who regarded the elders as bearers of the ancient traditions and who saw me as his mentor.²⁷

In other words, Wāñpō's symmetrical relationship to the originator of the text gave him license to alter the received text in much more dramatic ways than the asymmetrical relationship of the young tradent Nānmla. If we extend this model to the addition of epistemic labels or efficacy statements in both cuneiform and post-cuneiform compendia in Mesopotamia, we can be fairly confident that only those at the top of an institutional hierarchy would have been able to apply these qualifications to an existing compilation or subsection.

Later on in the same paper, however, Urban posits a more complex dynamic between originators and their replicators in the following pair of propositions:

The more the discourse is overtly coded as a unique instance, produced by its originator, and limited to a present context and circumstances, the less likely will the copier be to respond to it.

The more discourse is overtly coded as nonpersonal, that is, not as something generated by the originator but as transmitted by him or her, and the less it is linked to a present context and circumstances, the more likely will the copier be to replicate it: hence, the more shareable it is.²⁸

Stated somewhat differently, the transmissibility of a text and concrete moments of documented empirical validation seem to be largely incompatible. If a cuneiform text were to include, however anachronistically, a double blind clinical trial, it would still paradoxically make the transmission of the text more difficult in a traditional society. We can even see some evidence of this incompatibility between

²⁶ Urban 1996: 24–27; on the theory-laden character of transcription, see Ochs 1979 and Duranti 1997: 122–161.

²⁷ Urban 1996: 34.

²⁸ Urban 1996: 40.

transmissibility and empiricism in the specific linguistic and historical form that epistemic labels exhibit in Mesopotamian compendia.²⁹ The ubiquitous qualification of ‘tested’ remedies with the Akkadian adjective *latku*, for example, in cuneiform compendia carefully avoids referring to any specific instance of testing through the use of a non-descript, adjectival form. Epistemic labels like *latku* occupy a very special linguistic niche: they link the technical materials to one or more occasions on which the remedy or recipe was tested, tried, or successfully put to use, but these occasions are always stated impersonally (‘it is a tested remedy’ rather than ‘I tested it just now and it worked’) or located in the far-distant or mythological past (‘eye remedy used by Hammurapi’). Thus the authoritative weight of these rubrics does not necessarily lie in their minimalist semantics or historical probity, but rather in the decision of institutional authorities to append the rubric to a given body of material.

Three of the four contributions in this section (Steinert, Bhayro, and Raggetti) provide us with a broad survey of this type of phenomenon from the Old Babylonian period (ca. 1800 BCE) and first-millennium BCE cuneiform compendia through Syriac and Arabic materials that largely came into existence during the Abbasid period (ca. 750–1258 CE). Steinert’s contribution (“‘Tested’ Remedies in Mesopotamian Medical Texts: A Label for Efficacy Based on Empirical Observation?”) is particularly important in that it locates specific historical instances in which *materia medica* were tested, apparently for safety rather than efficacy, and these tests were then reported in epistolary form. Steinert offers a compelling example from a letter sent to Old Babylonian Mari early in the 2nd millennium BCE.

Regarding the plants (employed) against ‘the burning of *ṣētu*-fever’ of the physician (*asû*) from Mardamân and of the staff physician, about which my lord has written to me: I have sent their plants, which were gathered on a mountain, under seal with my signature to my Lord, and (I have sent) these physicians with La-gamal-abum, together with their plants.

My lord has already tried the herb for (curing) ‘the burning of *ṣētu*-fever’ of the staff physician, but I myself have (also) tried the herb for ‘the burning of *ṣētu*-fever’ of the Mardamân physician and it worked well (*šammam ša ḥimiṭ ṣētim ... altukšuma damiq*). (Steinert in this volume)

This kind of historically concrete and personal description of actual drug use, which goes on to say that it was also tested on a human guinea pig, never appears in cuneiform compendia, but it does suggest that in actual practice, physicians were testing remedies for safety and perhaps effectiveness. As Steinert emphasizes, the language of ‘testing’ does not seem to appear in any of the surviving second-millennium BCE compendia and even in first-millennium BCE therapeutic compendia only a small section or a limited number of individual recipes are designated as *latku* ‘tested’. Crucially, however, even in the context of those recipes that are

²⁹ For an overview of the question of empiricism in Mesopotamian thinking, see the papers collected in Selz 2011.

described as *latku* ‘tested’ no concrete information about specific events of testing or use are ever presented. This shows us that very different constraints operate on the compendia, blocking the inclusion of personal or historical information, and if Urban is correct in his postulation of an antithesis between concrete, personal specificity and the transmissibility of a text, then this is as we would expect: concrete instances of testing are excluded from the compendia in order to make them more easily transmissible.

The only apparent exception to the ban on referring to historical events in the compendia is the occasional mention of a famous ruler such as Hammurapi or Enlil-bani. Steinert also directs our attention to the most elaborate (and quite unusual) efficacy statement in the therapeutic corpus: the lengthy summary statement found in AMT 105,1:

Tested and checked salves and bandages *which are proven through experience*, from the mouth of the old sages from before the Flood, which Enlil-muballiṭ, a sage of Nippur, has left (behind for posterity) in Šuruppak, in the second year of Enlil-bāni, king of Isin. A non-expert shall show it to an expert, (but) an expert shall not show it to a non-expert. Taboo of Marduk. (Steinert in this volume)

Unlike other efficacy phrases, this “summary appendix” comes at the end of the text, immediately before the colophon and includes additional elements such as a secrecy clause and a statement of the antediluvian origin of the recipes in question. As Steinert points out, elaborate statements such as this represent “a late scholarly innovation and reflect a stage in the development of efficacy phrases tied to the formation of compendia and the establishment of authoritative textual series. At this stage, efficacy phrases are combined with other elements such as declarations of origin and secrecy formulae, as a conscious device to emphasize the importance and authority of the contents” (Steinert this volume). As we see here more complex efficacy phrases like *napšalātu takširānu latkūtum barūti ša ana qāti šūšū* “tested and checked salves and bandages which are proven through experience” often act as a center of gravity that attracts other types of authentication or authorization such as secrecy formula or statements of mythological origin.

As we turn to the use of efficacy phrases and other epistemic rubrics in more familiar Semitic languages, the secondary literature provides us with a somewhat clearer picture of the phenomenon. Efficacy phrases have been discussed in the context of medieval English recipes but also closer to home in a number of recent discussions of ‘tested and tried remedies’ in Aramaic, Syriac and Arabic.³⁰ As Rudolf points out in a forthcoming paper, bipartite ‘tested and proven’ formulae appear in a number of different groups of magical texts in late antiquity, including

³⁰ For efficacy phrases in Middle English recipes, see Jones 1998: 203–206; for similar materials in Aramaic and Arabic, see Schäfer 1990: 88; Schäfer and Shaked 1994: 135, 139, 146–147; Ullmann 1970: 311–313; Bohak 2008: 282.

materials from the Cairo Genizah and the Demotic and Greek Magical Papyri.³¹ Rudolf then goes on to suggest that the primary goal of these labels was to act as a form of propaganda or advertising for the sale of individual recipes. This is undoubtedly correct for many of the late antique texts, but the presence of these efficacy statements in institutionally-maintained compendia suggests that they must have operated in a substantially different way in more institutional contexts. Bhayro's contribution to this volume ("Theory and Practice in the Syriac *Book of Medicines: The Empirical Basis for the Persistence of Near Eastern Medical Lore*"), which builds on a number of important discussions of the Syriac Book of Medicines in recent years, offers a particularly important example of the use of efficacy phrases in Syriac compendia, a usage that is remarkably similar to what we find in cuneiform therapeutic materials.³² But more importantly, Bhayro also situates the Syriac Book of Medicines at a point of intersection between the lengthy written tradition in Mesopotamia and a newly invasive written tradition in the form of Galenic medicine.

Although the Syriac Book of Medicines contains both materials extracted from Syriac translations of Galen as well as recipes that derive from native Mesopotamian, presumably cuneiform compendia, the Galenic materials are particularly intriguing because they are "not a translation, but in fact an abridgement of earlier Syriac translations," removing the first person discussions in which Galen as author speaks.³³ Thus we see in a post-cuneiform compendium written in Syriac precisely the same processes at work that we saw earlier in the cuneiform compendia, even when the sources are Graeco-Roman in origin: the removal of specific individual or historical indices in order to produce a depersonalized text (see also my own contribution to the volume) in combination with the addition of efficacy phrases or epistemic labels. These two processes (depersonalization and the use of anonymous efficacy phrases) seem therefore to be characteristic of both cuneiform and post-cuneiform compendia in Mesopotamia. Moreover, if we compare these Mesopotamian compendia in cuneiform and Syriac with the processes at work in Galen's own compilations of recipes from a wide variety of sources, the processes at work could not be more different. The removal of 'Galen's own voice' from the Syriac Book of Medicines stands in stark contrast to what we see in Galen's own compilations of recipes (*De compositione medicamentorum per genera / localium = Composition of Medicines according to Types and Composition of Medicines according to Places*), in which Galen often preserves the first-person turns of phrase that he finds in his sources. Totelin has recently emphasized that Galen often incorporated first-person turns of phrase that he found in sources like Asclepiades in order to bolster the empirical force (*peira*) of his compendia, but this represents a radically

³¹ Rudolf forthcoming 5.

³² For Bhayro's earlier work in this area, see Bhayro 2005 and 2013.

³³ See Bhayro 2013 for an overview.

different and very non-Mesopotamian approach to textual authority.³⁴ Put somewhat differently, Graeco-Roman compendia such as Galen's recipe collections marshaled their authority by combining first-person descriptions of empirical practice (either as a revoicing of first-person empirical observation in the textual source or added by Galen as part of his own elaboration) with elaborate methodological arguments against other schools and practitioners, while the authority of Mesopotamian compilations was based on an anonymous, institutional authority, expressed in the form of metadiscursive labels and efficacy phrases.

In Raggetti's contribution ("The 'Science of Properties' and its Transmission") we see one of the logical endpoints of this distinctively non-Graeco-Roman form of compilation: those who put together the Abbasid period compilations that Raggetti focuses on were concerned with the 'science of properties'. These compendia made use of a complex vocabulary for describing underlying causal relations and empirical validity, including a contrast between materials described as either *Manāfi'* or *Ḥawāṣṣ* as well as a type of material known as *Muğarrabāt*. With respect to the first pair of terms, Raggetti explains that

the difference between *Manāfi'* and *Ḥawāṣṣ* lies in the transparency of the underlying causal relations. Within a comparative approach, one may infer that the relation between cause and effect in the *Manāfi'* is clear and can be deduced with a common sense approach. In the latter, the two different aspects meld, resulting in a peculiar and ineffable process of causation. (Raggetti in this volume)

The label *Muğarrabāt* was used in connection with medical phenomena, namely as a label for "records of physicians' case histories, treatments, medical experiences, and remedies which are at least 'described' as real cases" (Raggetti in this volume). As Raggetti notes, the figure of Abu 'Ala ibn Zuhr is of particular interest in this regard, since he was author of two major compendia (*Kitāb al-Muğarrabāt* 'Book of Tested Remedies' and a *Kitāb al-Ḥawāṣṣ* 'Book of Occult Properties') that might be thought to fit into the Mesopotamian type of compendia under discussion here. Raggetti has recently pointed out in another venue that ibn Zuhr was, however, Andalusian and made use of an explicit set of citational abbreviations in order to carefully track his sources.³⁵ Thus even where we can identify similarities between Mesopotamian and non-Mesopotamian compendia in the Abbasid period, it appears that the profound anonymity of technical compendia remained an abiding feature of the materials that were produced in the vicinity of the Abbasid court, while more explicit forms of citation came into existence in other regions of the Arabic-speaking world.

³⁴ For a discussion of first person usage in Galen, see Totelin 2012: 309, citing Fabricius 1972: 31 and 174–179.

³⁵ Raggetti 2014.

One of the other logical endpoints of this type of post-cuneiform tradition is actually to be found in Slavic folklore, where *historiolae* and other narrative elements drawn from Mesopotamian technical literature were recontextualized as ritual or ‘magical’ therapeutic remedies. Florentina Geller’s contribution (“Between Demonology and Hagiology: The Slavonic Rendering of Semitic Magical *Historiola* of the Child-Stealing Witch”) offers a rare insight into the Slavonic materials used against the Child-Stealing Witch, viz. the Sisinius prayers, but of course better known to Assyriologists as the Lamaštu demon. Geller first summarizes this far-flung tradition, extending from the Mesopotamian Lamaštu demon and the Liliths mentioned in Aramaic magic bowls and Syriac incantations to Greek and Slavonic versions of much the same story. The goal of all these materials is to prevent the death of recently born infants due to demonic attacks of one kind or another. The primary ritual mechanism at work in these materials is the recitation or inscription on an amulet or talisman of ‘protective names’ such as Sanui, Sansanui and Semnigraph in the Aramaic materials. As the *historiola* moves from one culture to the next, certain distinctive elements disappear: the name of the cuneiform demon Lamaštu is replaced by a generic term for female demon, namely Lilith, in the Aramaic magic bowls, and as Geller then points out, the “Slavonic magic texts do not remember Lilith” at all (F. Geller in this volume). Only the narrative framework and the three protective names remain. In the seventeenth-century apocryphal prayer or incantation entitled “Prayer to St. Sisin, Isidore, Simeon,” which Geller translates for the first time in her contribution the three protective names have morphed into Sisin, Isidore (< Sideros) and Simeon and in fact the narrative focuses exclusively on Sisin. In some sense, therefore, the materials collected in Raggetti’s contribution and in F. Geller’s contribution ramify in equal and opposite directions: the Arabic materials preserving the co-textual structure of the cuneiform technical materials in the form of infrastructural compendia, while the Slavonic materials in Geller’s contribution maintain the pragmatic context in which cuneiform technical materials would have been used in a decidedly post-cuneiform cultural context.

4 The two paradigms: towards a new textual criticism for Mesopotamian technical compendia

Central to the papers collected in this volume is the thesis that the type of scientific authority associated with the individual thinker or researcher in the Graeco-Roman world cannot be generalized to all of ancient science. More generally, as Rochberg puts it in her contribution to the volume (“The Babylonians and the Rational: Reasoning in Cuneiform Scribal Scholarship”):

... subsequent attempts to correct the misapprehension that the Greeks invented science and rationality, and to prove that rational reasoning, and with it science, does not have to be

categorically excluded from the ancient Near East has largely taken the form of showing that the contents, form, or methods of the cuneiform scholarly and technical writings satisfy criteria for rationality established in ancient Greek philosophy. (Rochberg in this volume)

Rochberg identifies Dodds's *The Greeks and the Irrational* as one of the hegemonic texts buttressing this "misapprehension" and one might even extrapolate from Rochberg's formulation that Dodds plays much the same role in the ideological substrata of classical scholarship that the idea of mytho-poetic thought advanced by the Frankforts in *The Intellectual Adventure of Ancient Man* plays in cuneiform studies.³⁶ As part of her excavation of these intellectual histories, Rochberg first notes that "Dodds' prime example of the Hellenistic trend toward the irrational was astrology," but then goes on to exemplify Dodds's vociferous rejection of occult properties and immanent forces:

Besides astrology, the second century BC saw the development of another irrational doctrine which deeply influenced the thought of later antiquity and the whole Middle Ages – the theory of occult properties or forces immanent in certain animals, plants and precious stones. Though its beginnings are probably much older, this was first systematically set forth by one Bolus of Mendes, called "the Democritean," who appears to have written about 200 BC. His system was closely linked with magical medicine and with alchemy; it was also soon combined with astrology, to which it formed a convenient supplement.³⁷

This is precisely the 'science of properties' material that Raggetti refers to in her contribution to this volume and the Democritean texts that Dodds is citing have recently been re-edited and recontextualized as part of the history of ancient science in the work of Matteo Martelli.³⁸

The crux of Rochberg's argument is that the linkage between astrology and the science of properties, the linkage that Dodds found so disagreeable, is in fact one of the key forms of rationalization in Mesopotamian scientific thought. Much of early Graeco-Roman medicine, for example, fixates on a four-fold system of humors and their links to the pharmaceutical properties of *materia medica*, a specific way of rationalizing pharmacology that is emblematic of Graeco-Roman science. In Mesopotamia, however, we find a very different paradigm in which correlations between native taxonomies of *materia medica* and astronomical/calendrical phenomena play the central role. Thanks largely to Steele's suggestion that the animal names in *Dreckapotheke* mentioned in the late *Kalendertexte* correspond to zodiacal signs (a plant coded as 'sheep-blood' corresponding to Aries, for example), these materials have emerged as a new hotbed of research into this distinctively Mesopotamian form of rationalization, or as Rochberg says:

³⁶ Frankfort and Frankfort 1946.

³⁷ Dodds 1956: 246.

³⁸ See in particular Martelli's *The Four Books of Pseudo-Democritus* (2014).

The *Kalendertexte* epitomize a method that relates traditional scholarly knowledge concerning stones, plants, and animals of the Babylonian pharmacopeia with astronomical number schemata, the zodiac and the ideal calendar. The number schemes seem to function as techniques for creating multiple correspondences. The particulars of these various parts of the world were interconnected, to be drawn together in a variety of correlations and correspondences, one essential component of which was correlation by analogy. (Rochberg in this volume)

If the dominant form of rationalization in late Mesopotamian culture involves correlations operating *between* disciplines, as they are usually conceived (and in a culture that was generally hesitant to put metadiscursive or theoretical statements into writing), how can we operationalize Rochberg's hypothesis that a distinct form of rationalization was operating in Mesopotamian circles?

One of the main contentions of this volume is that the redactional processes surrounding technical compendia provide some of the best evidence for this specifically Mesopotamian form of rationalization. This approach grows out of both Eva Cancik-Kirschbaum's work on the diagrammatic structure of textual artifacts and also out of recent discussions with Lucia Raggetti and Matteo Martelli about the nature of technical compendia in antiquity.³⁹ The refigurations of Arabic technical materials discussed in Raggetti's contribution to this volume are particularly apt: even at the end of our temporal framework (yet still operating within a distinctively Mesopotamian mode) these compendia were frequently reorganized precisely in order to highlight certain types of elements within a given entry (name of material, source, or pharmaceutical effects). By reorganizing the entries in a compendium according to their medicinal properties, the possible correlations with medical texts are made more accessible; if reordered on the basis of the animal from which a particular material derives, links to the zoological literature are made available.⁴⁰ Although a distinctive textual criticism for ancient technical and scientific compendia is still only in its infancy, it is clear that it must come to grips with both the modularity of groups of entries as they move between compendia as well as the redactional processes that were applied to individual entries. The final two papers in the volume (Wee's discussion of embedded variants in the Diagnostic Handbook and my own contribution) speak directly to this issue.

Building on his forthcoming work on the commentaries to the Diagnostic Handbook (Sum. sa.gig, Akk. *sakikkû*), Wee offers us a fascinating insight into the redactional processes surrounding individual entries in the diagnostic tradition ("Phenomena in Writing: Creating and Interpreting Variants of the Diagnostic Series Sa-gig"). As Wee points out, the Diagnostic Handbook has emerged as the favorite exemplum for discussion of the redaction of compendia in a specifically Mesopotamian context. This is largely because its most famous redactor, Esagil-

³⁹ For the diagrammatic structure of textual artifacts, see Cancik-Kirschbaum and Mahr 2005; Cancik-Kirschbaum 2010; 2012; Johnson 2013a.

⁴⁰ See Eisenstein 1991 for an overview and von Staden 2013 for a recent survey.

kīn-apli, who served as one of the leading scholars under Adad-apla-iddina (1068–1047 BCE) actually appended a rather detailed description of his editorial activities to a catalogue listing the tablets in the *sakikkū* series, which Livingstone has recently retranslated as follows:

That which since the distant past had not received a new edition (*ša ul-tu ul-la sur.ḡibil la' ṣa-ab-tu₄*) and the twisted strands of which had had no forerunners: in the reign of Adad-apla-iddina, king of Babylon, to work it anew Esagil-kīn-apli, descendant of Asalluḫi-mansum, sage of Hammurabi the king, mainstay of Šin, Lisi, and Nanaya, burgher of Borsippa, steward of Ezida, priest of Izuzu (Nabû the capable one), who holds the Tablet of Fates of the gods, who reconciles conflicting things, purification and ablution priest of Ninzilzil (Nanaya), the Lady of Solicitude, close sister of his (Esagil-kīn-apli's) beloved one, the scholar of Sumer and Akkad (i.e. Esagil-kīn-apli himself), with the ingenuity that Ea and Asalluḫi had bestowed upon him, personally carried out evaluation and established editions of *sakikku*, from head to foot, and established it for knowledge (*sur.gibil dab.meš-ma ana níg.zu DU-in*)! Pay attention! Be careful!

Do not neglect your learning! He who does not stand by knowledge must not recite *sa.gig*, nor may he call out *alamdimmū*. The (series) *sa.gig* is the composition for sickness and depression. The series *alamdimmū* is the series for the human form and likeness, which Ea and Asalluḫi decreed. Both series comprise one composition. Let the exorcist who makes the decisions and watches over people's lives and who knows *sakikku* and *alamdimmū* in their entirety investigate and examine. Let him deliberate and put his diagnosis at the disposal of the king.⁴¹

As Wee makes quite clear, the key opposition in this passage is between still unedited or not yet compiled materials (*sur.gibil la ṣa-ab-tu₄*) and the new compilation (*sur.gibil dab.meš*) that Esagil-kīn-apli has produced.⁴² This lengthy statement must be seen as the logical or formal endpoint of the historical practice of appending efficacy phrases and other metapragmatic qualifications to written compendia, so in some sense the process that began with the testing of pharmaceutical recipes as described in Steinert's contribution reaches its fullest form in Esagil-kīn-apli's statement of editorial intention. And it is really only here in this statement that we find a literary form that is roughly comparable to the elaborate prefaces that were regularly attached to Graeco-Roman technical treatises.⁴³

The compendia that Esagil-kīn-apli put together at the end of the 2nd millennium were, in formal terms at least, not very original: they built on a well-established model for medical compendia and made use of a standard terminology for late medical compendia. In his *editio princeps* Finkel already pointed out that SUR.GIB-IL corresponds to Akk. *za-ra-a*,⁴⁴ which as Wee argues is probably to be read as *ša-ra-a* and can probably be linked to the same idiom for editorial work in the

⁴¹ Translation Livingstone 2013: 273.

⁴² For the textile metaphor for editorial work in operation in this passage, see Rutz 2011, but the same metaphor is already attested in the Early Dynastic scholastic materials (see Johnson 2013b).

⁴³ See Föllinger 2012 and van der Eijk 2013 for recent discussions of the Aristotelian *pragmateiai*.

⁴⁴ Finkel 1988: 150.

catalogue of therapeutic materials known from Assur and at least one copy of the plant list URU.AN.NA, where it is written out syllabically *ša ul-tu ul-la ša-ra-a la sab-tu*.⁴⁵ As Wee emphasizes, this idiom makes use of a textile metaphor:

Whatever the Akkadian may be, Stol was correct to observe that the logogram SUR is associated with “spinning,” “twining” and “weaving.” The metaphor “tangled like threads,” which immediately follows, certainly supports this view. According to the same logic, a text from Assur (VAT 10493+10543) describes an older version of the Physiognomic Series *Alamdimmû* as “the old (series) ..., which Esagil-kîn-apli has not unraveled (DU_g),” again portraying his editorial method as the process of unraveling textual threads from older compositions before combining the material in new ways to create a fresh edition. (Wee in this volume)

Thanks to a new edition of the therapeutic catalogue from Assur, which is being put together by the BabMed team in Berlin, it is now clear that both the diagnostic and the therapeutic materials were each organized into a distinct bipartite compendium in which the first major section was devoted to a head-to-foot enumeration of illnesses (corresponding to the Diagnostic Handbook), while the second half described general characteristics of the patient’s body on the basis of external signs or externally caused medical situations (corresponding to the physiognomic materials in *alamdimmû*). Veldhuis points out that this same bipartite structure is also found *grosso modo* in the Old Babylonian list of human body parts (Ugumu):

After the section on toes, where the “head to toe” arrangement comes to an end, the text continues with words that refer to ages (“my youth,” etc.) or to the body as a whole (“my stature,” “my shadow,” “my skeleton”). This section is badly preserved in the Nippur material, but is now attested in several unprovenanced exemplars.⁴⁶

Thus we can see that much the same compendial structure is found in the standard anatomical list from the Old Babylonian period (ca. 1800–1600 BCE) as well as diagnostic and therapeutic compendia that are first attested at the end of the 2nd millennium BCE. Presumably the Old Babylonian anatomical list served as the model for these later technical compendia and all three branches of ancient Babylonian medicine (anatomy, diagnostics and therapeutics) were organized along similar lines.

At the heart of Wee’s contribution, however, is a fascinating study of how divergent elements within an established compendia could be edited into a new

⁴⁵ Wee describes several possible etymologies and cognates in his contribution (p. 254 and n. 27). If *ša-ra-a* (= Sum. SUR), the term for ‘compendium’ in Esagil-kîn-apli’s statement can be related to a geminate form such as Akk. *šarāru* or especially its byform *šarāru*, it may be related to the Syriac term *šarīr* ‘valid, certain, trustworth (of textual materials)’ that Bhayro discusses in his contribution. See also the Akk. D-stem *šurruru* ‘to prompt’, which corresponds to Sumerian {saĝ-gíd} and should not be confused with {sag.ki-gíd} = Akk. *nekelmû* ‘to be angry at’. See in particular Dialogue 3, line 180: {tukum-bi saĝ ba-e-gíd-da-bi inim in-ne-ni-gi₄} “if they prompt, you will answer them” (cf. Karahashi 2000: 137, ex. 3).

⁴⁶ Veldhuis 2014: 159, see also Couto-Ferreira 2009: 343–363.

compendial redaction through the use of embedded variants. Wee starts out by bringing together the complex redactional stages of a given entry in the Diagnostic Handbook, showing how late second-millennium fragments can be lined up with both standard entries in the Diagnostic Handbook as well as late commentaries on the same entry. This is particularly clear in his discussion of the phrase “the *kiššatu* of the *šētu*-heat,” which is attested in a late second-millennium Hattusha fragment as well as in the Diagnostic Handbook as a form of muscle pain associated with the *šētu* fever, but is subsequently reinterpreted in an Achaemenid period commentary as a variant form of the ubiquitous phrase “burning of the *šētu*-heat” (Akk. *ḥimiṭ šēti*). This sequence provides us with some idea of the kind of redactional moments that could have lead to embedded variants such as the following:

Type	Location	Variation
Logographic-syllabic	DPS 19/20:95'	<i>mi-qit pi</i> : KA 'Fall : of the mouth (syllabic) : of the mouth (logographic)'
Semantic (verbs)	DPS 20:85'	<i>dšu-lak ŠUB-su</i> : DAB- <i>su</i> 'Šulak befalls him : seizes him'
Semantic (nouns)	DPS 23:7	IGI.MEŠ-šú : UZU.MEŠ-šú GE ₆ .MEŠ 'his face : his flesh is black'
Semantic oppositions	TDP 4:1	KÚM- <i>im</i> : SED 'he becomes hot : cold'
Time designations	DPS 1, 8	ana ITI.3.KAM : ana U ₄ .3.KAM 'for 3 months : 3 days'

These are only some few of the simplest examples from the extensive set of embedded variants that Wee collects in his contribution. Crucially, this type of textual collocation indicates that the redactor was often faced with variations in his compendial sources and chose to include *both* variants at a given point in the compendium rather than deciding in favor of one or the other. Wee also demonstrates that these variants often served as key points of departure in the commentaries, and this presents us with a crucial building block for future work on the textual criticism of compendial entries and the infrastructural texts in which they appear.

My own contribution (“Depersonalized Case Histories in the Babylonian Therapeutic Compendia”) brings the volume to a close and attempts to reconstruct the processes through which new entries, particularly those that might represent a kind of case history, were added to the therapeutic compendia. That Hippocratic case histories such as those collected in *Epidemics* are the first solid examples of the case history as a medical genre has become an axiomatic point in comparisons between Mesopotamian and Graeco-Roman medicine, yet I suggest that there are clear instances in the Babylonian therapeutic compendia in which a specific case and its circumstances have been ‘depersonalized’ and only then entered into a

therapeutic compendia. My paper therefore suggests that there are in fact case histories embedded in Babylonian therapeutic materials, but that a set of conventions surrounding the codification of specific phenomena in Mesopotamian compendia of all types prevented any explicit reference to the names of individuals. This follows largely from practices that are now fairly well understood in the context of Mesopotamian law. Charpin, for example, has shown that new statutes within the well-known legal compendia such as the Codex Hammurapi were codified and added to these compendia through the issuing of a royal rescript in reaction to a particular legal case. These rescripts reformulate the details of the individual legal case in a depersonalized way and we must assume that much the same took place when the leading physicians or scholars decided to add a new case history to an existing compendium. This process of depersonalization fits very nicely into the model for the transmission of information proposed by Urban in that the depersonalization of a case history would have made it easier to transmit and thus, at least within a Mesopotamian context, much more authoritative.

The legal analogy that is central to my contribution is also relevant, however, to broader histories of early scientific epistemology, particularly once we recognize that certain second-order concepts such as ‘nature’ or ‘the laws of nature’ are almost impossible to identify in the cuneiform textual record.⁴⁷ The origin of ideas comparable to ‘the laws of nature’ in the cuneiform tradition has recently been thematized in a number of papers such as M. Geller’s discussion of the role of technical astronomy and secularization or Rochberg’s overview of the social processes surrounding the codification of astronomical knowledge.⁴⁸ In a forthcoming paper entitled “Where Were the Laws of Nature Before There Was Nature?” Rochberg attacks one of the central problems of Mesopotamian epistemology: how did legal models impact technical compendia prior to the invention of the legal *metaphors* that underlie scientific investigation from Classical Antiquity up through our own day? But as Rochberg points out, the legal metaphor that seems to be operating in Mesopotamia differs from the legal metaphors in later cultures in that the object of the metaphor in Mesopotamia was the semiotic activity of the gods (as mediated by objects in the physical world) rather than the material objects themselves (as an autonomous realm of nature).

Juridical or legal terminology in cuneiform texts has no reference to “nature,” that is to say, no reference to a domain of physical phenomena qua phenomena, but only to phenomena qua signs of divine will and intent. The divine-human relation, whether effected by means of divinatory techniques to obtain knowledge directly or indirectly from the gods, or by means of ritual acts of entreaty to gain a response from a divinity, is what was described juridically, not the phenomena themselves (i.e., not nature itself). However, insofar as phenomena were taken as signs of divine communication, legal terms were extended to them as well, as in

⁴⁷ See, however, the discussion of Akk. *šiknu* as ‘nature’ in Stol 1992: 48

⁴⁸ Geller 2011 and Rochberg 2011 respectively.

Esarhaddon's use of the word *kittu* "truth" to denote the regular paths of the stars, and in the formulation of omen statements as "laws". (Rochberg forthcoming)

In the processes of codification through which new therapeutic case histories are depersonalized, however, we see something quite different. The model in question is a juridical procedure used by the crown to codify a new statute within the legal codes and this procedure is then carried out at a lower level in the social hierarchy. Rather than the king – invested with the authority of the gods – creating a new legal statute through the issuing of an edict (a procedure that is portrayed and justified as a lower-order emulation of the juridical behavior of the gods as, for example, in divination), in the lower-order realm of therapeutic medicine, we must imagine the leading specialists within a given technical discipline – invested with authority from the crown rather than the gods – deciding to include a specific, yet depersonalized case history within an established compendium of therapeutic practice.⁴⁹

This idea, that authority was devolved from a higher stratum in the hierarchy to a lower stratum, was the organizing principle for Mesopotamian technical knowledge at all levels and was centrally concerned with the sources of authority rather than the empirical investigation of material realities. Stated somewhat differently, in the older phases of Mesopotamian technical and scientific practice, authority was vested in institutions rather than highly personified authors and the leadership of these institutions was put in place by higher-order institutions: the gods put the king at the head of human society, and the king in turn chooses the individuals who will head up specific professions. In light of the carefully formulated notions of institutional hierarchy at work here, the mirroring of social practice that took place at each interface (gods interfacing with human king, the king interfacing with the elites of each profession) is less metaphorical than a matter of the position of a social group within the hierarchy: lower-order institutional practices are modeled on higher-order ones, human practices on the practices of the gods. Even if, as M. Geller has suggested, the rise of mathematically predictive techniques in the Achaemenid period begins to bleach these loaded terms of much of their ideological ballast, with the rise of new institutional authorities, whether in Syriac monasteries or the Abbasid court, we see the same configuration of heavily institutionalized authority and anonymous compendia, a configuration that we should probably see as a distinctively Mesopotamian model for the dissemination of knowledge, a model largely at odds with the centrifugal form of authority and authorship that dominates in the Graeco-Roman compendia.

⁴⁹ Here we see the devolution of authority as it moves across social and institutional strata, a concept that is usually summarized in the languages of Mesopotamia using the Sumerian terms {me} or {garza} = Akk. *paršu* 'cultic office', see generally Farber 1990.

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A. The Infrastructural Compendium

M. J. Geller

Encyclopaedias and Commentaries

Abstract: This paper looks at how empirical knowledge was assembled and interpreted in Babylonian academies and investigates two Neo-Assyrian plant lists: KADP 2 and KADP 4. These two lists are not simple collections of scholastic information but represent examples of theoretical botany and pharmacology. It is suggested that KADP 4 is a kind of proto-commentary, in which glosses represent keywords for hermeneutical elaborations. The paper concludes with an annotated transliteration and translation of KADP 4.

1 Introduction

The theme of empiricism (or better pseudo-empiricism) poses major challenges for Mesopotamian science, since it remains unclear how Babylonian scholars actually gathered data, with the exception of astronomical observations. Every recipe – and by this I mean medical recipes, cooking recipes, glassmaking recipes, mathematical riddle-problems, magical rituals, and even grammatical rules – all leave us in the dark about the processes which lead to the particular formulations which are found. We can posit some kind of haphazard trial-and-error process extending over millennia,¹ out of which mostly bogus notions of causality emerged, but this was true of Greek science as well: we know about arguments, analogies, and logic, but little about how empirical data were collected and sorted.

One potential new avenue of inquiry is to examine this problem from a somewhat different perspective, to see how empirical knowledge as such was assembled and then later interpreted in Babylonian academies, at a time when commentaries were becoming an established genre; the underlying assumption is that the lists provided some kind of hermeneutic function beyond being collections of data.

This quest is somewhat constrained by the norms of the discipline, in which terms such as ‘school texts’ and ‘scribal schools’ are used, without differentiating between primary schools and advanced institutional training in higher academies

¹ See Nutton 2004, 148, for the use of trial and error within the Empiricist school of Greek medicine. See also Bottéro 1974, 193, in which he concludes that sophisticated scientific thinking in Mesopotamia paved the way for Greek science, by arguing for analytical deductive logic in Babylonian divination. Nevertheless, despite Bottéro’s extensive and comprehensive treatment of divination as representing scientific thinking, it is difficult to escape from the *post hoc ergo propter hoc* fallacy judgment which always comes to mind when one reads the omen literature (see Bottéro 1974, 165).

of learning, if such institutions indeed existed.² Although the extant cuneiform record represents the work of pupils in scribal schools copying ‘lexical texts’ as expressions of rudimentary lexicography or *Listenwissenschaften*,³ it is more difficult to form a picture of the ‘learned men of the country’, to use Jack Goody’s phrase, who composed works of ‘lexicography and grammar, encyclopaedias, divination, mathematics, medicine, as well as jurisprudence’.⁴ On the basis of present evidence, it may be reasonable to assume that Babylonian *Listenwissenschaften* lacked the logic of Greek scholarship, even in periods when Babylonian and Greek *savants* were contemporaries.

Nevertheless, there is certainly need for some revision here. The term ‘school texts’ should be revised to ‘academic texts’, since many exhibit high standards of scholarship, as we will see. As for the key role of ‘lexical lists’ within an oral academic culture, these should rather be regarded as ‘keywords’ or ‘lemmata’, as the bases for discussion or recall of information. If we think of the lists in this way, and then consider the enormous breadth of subjects they encompass, from grammar to philology to lists of *realia*, legal forms, etc., this brings us closer to the idea of an encyclopaedia, namely an orally transmitted collection of information which tries to define *all* knowledge, or the totality of what is known.⁵ The structure of the lists or lemmata divides itself into various categories, but the actual logic within each category is rather free and associative, as is typical of an ancient encyclopaedia. In this respect, the Babylonian Talmud serves as a relevant model, as an essentially orally related collection of academic learning organised into six fixed subject headings (agriculture, festivals, women, torts, cultic practices, and purity laws), but within which the actual logic of the internal discussions was free and even somewhat random. Fortuitously, the Talmudic discussions were recorded, after a fashion. In Babylonian schools, while the main curriculum texts were written down, the commentaries and exegesis were mostly oral, and only in later periods do written commentaries appear and these often only containing the keywords behind the oral hermeneutics.

Let us look at an example of how this system would have worked by examining a rather banal extract, chosen at random, from a lexical list, Hh V, giving various

² Jack Goody (1987, 75) has brought Bottero’s discussion of the ‘mandarins’ who invented Mesopotamian science into a broader arena; Goody (1987, 75) gives the following translation from Bottéro (1982, 426): “These mandarins, grouped together in schools and academies around palaces and temples, began very early to interest themselves in a certain range of phenomena, to study them and to compose works that one can hardly call anything except ‘scientific.’” Goody adds that these texts “were copied, studied endlessly, adapted, enriched and republished until shortly before the beginning of our own era”.

³ Veldhuis 1997, 137–142; Gesche 2000, 81–146.

⁴ Goody 1987, 75.

⁵ Again Bottéro grasps the point (1974, 101), describing divination as “une sorte d’encyclopédie divinatoire par les aléas de la vie quotidienne, centrée sur l’homme et ses conditions de vie, urbaine, sociale, familiale, son environnement, ses travaux et ses jours”.

terms for ‘plough’. What could be more basic than a ‘plough’ (Akk. *epinnu*)? The text at first glance appears to be aimed at younger students.

LTBA I (= Hh V) col. iii

5' ^{giš} apin	<i>e-pi-[in-nu]</i>	‘plough’
6' ^{giš} apin zu	<i>mu-še-^rlu⁷</i>	‘winnower’ (plough)
7' ^{giš} apin zu-zu	<i>mu-še-lu-^ru⁷</i>	‘winnower’ (plough)
8' ^{giš} apin zu	<i>tal-mi-[du]</i>	‘learner’s’ (plough)
9' ^{giš} apin zu-zu	<i>tal-mi-[du]</i>	‘learner’s’ (plough)
10' ^{giš} apin šu	<i>ga-di-^rbu⁷</i> (var. <i>agadibbu</i>)	‘hand’-plough

However, after a closer inspection, the picture changes. The *apin zu(-zu)* or *mušelû* type of plough literally digs (or ‘raises’) things up. But Akk. *mušelû* also designates a profession, e.g. one who ‘winnows’ (lú.še.bal, lit. ‘one who digs up the barley’), or alternatively a ‘lower-order winnower’ (lú.še.bal.ki.ta), or even a ‘doorkeeper’ (sukkal ì.du_g), who keeps out (‘winnows’) the riffraff. The Sum. term lú.še.bal, also translated by Akk. *mušelû*, may in fact refer to a person involved with trade or loans, being terms which employ the same Sum. expression; perhaps the lú.še.bal is one who ‘raises’ the price of things through loans and trade.⁶ A *mušelû* can also bring up ghosts and hence defines the ‘necromancer’ (lú.balag.gá / bulug.ga). Equally intriguing in the Hh V passage above is the *talmīdu*-plough, unconvincingly rendered by the dictionaries as a ‘learner’-plough. The point is that these definitions in Hh V are quite sophisticated, since they can be expounded in either direction (from Sum. to Akk. or vice versa): a good *talmīdu* or student, for instance, is one who ‘ploughs’ his tablets, raising important questions, winnowing out the banal and incorrect data. Whatever the case, we lack the brilliant or perhaps fanciful hermeneutics of the local *ummānu*, whose job it was to explain these seemingly dry lifeless texts. In essence, without the exegesis, our texts are skeletons without flesh, but at least we should be aware of what we are missing.

2 Reconsidering the plant lists

Let us now consider another brand of *Listenwissenschaften*, namely plant lists, for which we still impatiently await Franz Köcher’s edition of Uruanna, although many

⁶ Based upon a literal meaning of Sum. še.bal, to ‘exchange barley’. Cf. Nabn. xvi 104–106 (MSL 16 106), which has the following entries:

bal = *šu-pe-lu ša sal* (= *mimma*) (‘exchange’ of whatever)
 šu.bal = *min ša sal* (= *mimma*) (‘ditto’ of whatever)
 še.bal = *šu-pel-tum* (‘exchange, trade’)

years have already passed since his death. What interests us are two Neo-Assyrian plant lists coming from the famous *Haus des Beschwörungspriesters* in Assur. One text, published by Köcher as KADP 2, is a 6-column tablet in which each column is subdivided into two lists of plants, while the second tablet, published by Köcher as KADP 4, is a single column tablet which can easily be held in the palm of the hand; in fact these two tablets were probably written by the same scribe. Both plant list tablets exhibit the normal pattern of such texts, i.e. a plant name in the left column corresponding to a plant name in the explanatory right column, although this is not always the case, as we shall soon see.

The thing about plant lists is that they always look so uninteresting. KADP 2 is a case in point: duplicate names for plants, with some designated as coming ‘from the mountains’,⁷ while other plants are clearly of foreign origin, judging by their names; the right-hand column informs us that these plants are Kassite, Subaraean, and Guti plants,⁸ even though these geographical designations were not current at the time this tablet was being copied and read in Assur. Noteworthy is a little gloss on the final plant, from Marhaši, which says that the plant is ‘not known’ (*la idû*), but to whom? One would ideally like to know for whom this gloss was intended.

The second smaller tablet, KADP 4, which can be held in the hand, is full of such little glosses throughout. An initial glance at the glosses in KADP 4 invites one to believe that the scribe was a young inexperienced student who needed to crib before reading his tablet out in class. But after collating the tablet, things look rather different.

A closer look at the glosses shows that some are purely phonetic,⁹ such as in ll. 5 and 6, in which the same logogram URU is normalised with either *iri* or *ru*, depending upon whether the word is to be read as Akkadian or Sumerian.¹⁰ Many of these phonetic glosses appear to be banal, but not always, e.g. the úkuš-cucum-

Cf. also Nabn. 17: 82–84 (MSL xvi 82–84):

šu.lá	=	<i>qi-ip-tum</i> (‘loan’)
šu-pe-el-lá	=	“
še.bal	=	“

7 KADP 2 i 5–8

‘ú’ <i>e-li-lu</i>	ú min šá kur-i
ú ugu-kul-la	ú min šá kur-i
ú in.nu.uš	ú min šá kur-i
ú sikil	ú min šá kur-i

8 KADP 2 i 31–35:

ú <i>ha-ši-bur</i> (<i>hašimbar</i>)	ú min <i>Kaš-ši-i</i>
ú <i>ka-bit-ti-gal-zu</i>	: ú min min
ú su.ug.su.ug.bar	: ú min <i>Su-bar-ri</i> ⁷
ú <i>til-la-a-kur-ta</i>	ú min <i>Gu-ti-i</i>
<i>za-mar sa-mu</i>	: min <i>ár-qu</i> : ú min šá <i>Mar-ha-ši</i> (gloss: <i>la i-du</i>)

Note the gloss on the last entry above.

9 See KADP 4 i 30 (coll.).

10 KADP 4: 5. See also Uruanna I 183.

ber is glossed as *akšû*, an unexpected variant.¹¹ Similarly, the reading of the stone name ^{na4}sal.la is confirmed by the phonetic gloss /sa/,¹² although other possible readings of this stone name could be ^{na4}gal₄.la or ^{na4}šal.la, both ruled out by the gloss.¹³

More intriguing, however, is the gloss *šumeru* repeated throughout, indicating that an entry is to be read as Sumerian and not normalised as Akkadian. It at first appears that the scribe was so new to this game that he had to remind himself that simple words, like *gir.pad.du*, were Sumerian logograms,¹⁴ and he glosses *nam.lu.u₁₈.lu* as *amēlūtu*, ‘mankind’,¹⁵ which any beginner ought to know. But later in this text, the same logogram *nam.lu.u₁₈* is glossed as *šumeru*, while in the explanatory right-hand column *Sum. lú* is glossed with *amēli*, ‘man’.¹⁶ The best clue to what is actually happening comes from glosses on the plant name *níg.gidru*, a term which is commonly rendered in Akkadian as *hatti re’i* or ‘shepherd’s crook’-plant, but it is clear from the glosses that the plant name is to be read as a logogram, perhaps as the *niggidrū*-plant,¹⁷ and not as *hatti re’i*. In other words, the gloss *šumeru* is not elementary or naive, but gives a judgment as to how the plant name is to be read, whether to be normalised into Akkadian or to remain in its Sumerian logographic form.

But does this scribe know Sumerian? More intriguing is KADP 4 15, in which the explanatory right-hand entry is *murrar ša šatturi*, a bitter plant for the womb, but the tiny gloss, explaining the actual use of this plant, reads: *numun tu dumu*; although not very transparent, the scribe was being clever in abbreviating the Sum. phrase *nu.mu.un.tu dumu*, ‘(a woman) who cannot bear a child’. There is little doubt that the scribe understood at least rudimentary Sumerian.¹⁸

So these glosses show the text to be more than just a simple list, which in any case contains allusions to other texts. One example is the equating of the yellow-green *illuru* plant with *šumuttu*-plant, described as a ‘plant against haemorrhage’.¹⁹ In fact, this description probably comes directly from rectal disease texts, which equate anal bleeding with menstrual bleeding; the same word *nahšātu* ‘haemorrhage’ is used in these recipes, with a principal drug against haemorrhage being *šumuttu*.²⁰

11 KADP 4 39: *ú.úkuš* (gloss: *ak-šú-u*) rather than the usual reading of the logogram /*úkuš*/ as Akk. *qišsu*, ‘cucumber’.

12 KADP 4 52.

13 See Schuster-Brandis 2007, 442, ‘die Lesung des Steinnamens is bislang unbekannt.’

14 KADP 4 29.

15 KADP 4 25.

16 KADP 4 56. See also MSL 9 38.

17 KADP 4 11 and KADP 4 29.

18 The same orthography of /numun/ as a verbal prefix also occurs in late Graeco-Babyloniaca texts, cf. Geller 1997: 76, No. 11: 5.

19 KADP 4 14: *úr ninda* sig₇ = *úšū-mut-tú ú šá na-ah-šá-te*.

20 See BAM VII No. 22 iii 14. Another rectal disease recipe recommends *šumuttu* for haemorrhaging (*nahšātu*, cf. BAM VII No. 35, 19–23, 36: 2–7).

Citations from other texts within this plant list are equally illuminating. The expression *zamar s̄amu zamar aruqu*, ‘suddenly red, suddenly green’ (KADP 4 8), referring to colour changes in plants under unspecified conditions, occurs in therapeutic recipes.²¹ This chameleon-plant is identified as the common garden-variety ^ú*aktam*, but the list then specifies that ‘they also call it *turazu*-plant’.²² This latter phrase looks similar to commentary phraseology, which is hardly surprising because of the similarities between certain kinds of *š̄atu*-commentaries and lexical lists.²³

Some of the more interesting entries in KADP 4 describe a plant on which a gecko is lying in the bright sun, and we are then given the plant’s name and told that it is good for a barren woman (see the edition of KADP 4, lines 36–37 below); two other types of plants are also described as sought out by geckos and crows, presumably as favourite haunts (see KADP 4, lines 38–39 below). These entries have parallels in the longer six-column tablet (KADP 2), which provides supplementary data.²⁴ It is clear that these lines are explanatory and do not quite fit the standard two-column layout of the plant lists, and in fact these phrases read rather like a citation from Šammu Šikinšu, an explanatory list which describes general botanical characteristics, with reference to a similar plant, and then gives the plant name.²⁵

A list of stones in KADP 4 looks fairly standard until one notices stones which turn out to be calculi emitted from human bodies and subsequently used as *materia medica*. One such ‘discharge’ (*mušu*)-stone (l. 54) is glossed as ‘female’ (Akk. *sinnišu*), while the same stone is later given as coming from the penis.

One point now seems clear: a boring plant list is it anything but. The real question is what is behind the relationship between these two texts: KADP 2 and 4.

²¹ AMT 86, 1 ii 12

²² KADP 4 8: ^ú*za-mar sa*₅ (gloss below: *sa-a*) *za-mar sig*₇ (gloss above: *a-ru-[q]u*) = ^ú*ak-tam tur-a-zu du*₁₁.ga.

²³ See generally Frahm 2011, 48 ff.

²⁴ KADP 2 v 36’: *šam-mu ina muh-hi-šú a-ri-bu ra-ab-šu ú ak-tam šam-mu-šú*, ‘the plant on which the raven settles and the name of which is *aktam*’. In l. 40, we find a closer duplicate to the sun-bathing gecko, but with a more descriptive context in KADP 2 v 40’–45’:

šam-mu ina muh-hi-šú muš.dím.gurun.na

ra-ab-šu : *ú ša-hat eme.ur.gi₇ ina* ^ṛ*muš*^ṛ

a-na šà.zi.ga sig súd ina *ì šéš-šú*

šam-mu ina muh-hi-šú muš ik-ta-na-a-nu

ú aš ^ú*pi-in-zi-ir mu-šú*

a-na pu-luh-ti sig₅ súd ina *ì šéš-šú*

‘The plant on which the gecko settles: the plant of “a dog’s awe before a snake”, good for impotence, pound it and rub (it on) in oil.

The plant on which the snake coils, its Deckname is *pinzir*,

it is good against angst, pound it and rub (it on) in oil’.

²⁵ See Stadhouders 2011.

On one hand, the six-column tablet (KADP 2) comes from an Assur archive, not a library; the tablet was probably for the private use of an Assur scholar, either for teaching or study purposes. One might conclude that this large tablet is part of a compendium of plant-lore, which associates one kind of plant with another, perhaps as if they shared some of the same properties. KADP 2, however, does not appear to represent a mechanical copy of a standard or canonical Uruanna plant list, since many of the entries are explanatory and differ from other texts of this genre.²⁶ What is most striking is that these are not the plants which usually appear in therapeutic prescriptions or were used in the actual practice of medicine. It is surprising how few of the plant entries match the usual *materia medica* encountered in medical texts and how unfamiliar most of the plant names of KADP 2 and 4 are to therapeutic medicine. Both tablets consist of mostly exotic plants, some imported, which describe theoretical botany and pharmacology, but these tablets were not actual inventories of healing drugs. So these lists raise many more questions that only the *ummânu* could have answered, as part of his orally transmitted encyclopaedia of plants and minerals.

On the other hand the smaller tablet (KADP 4) from the same archive is full of minute glosses, as if commenting on the larger tablet. We must remember that we are back in eighth-century Assur, before commentaries became a well-established academic genre, and that KADP 4 is a type of proto-commentary in which glosses represent keywords for hermeneutical explanations which we otherwise lack. This same system of glosses was later expanded into commentary texts but with a similar idea, that keywords systematically alluded to longer and more detailed explanations and comments.

Encyclopaedias and commentaries: we recognise these genres later on the Babylonian Talmud and elsewhere. It would be a good idea to begin to put this data together, to see how Babylonian *Listenwissenschaften* reflect the orally transmitted process of assembling, sorting, and explaining the world around us.

²⁶ We will know better when Köcher's edition of Uruanna is finally published.

Appendix

KADP 4

Transliteration

	col. i		col. ii
1	[údu]h ^{tu} -lâl ^l 27		úmaš-ta-kal
2	ú ^r e ^r -li-la		ú min šá kur-i
3	úina. _{tâl-lî} úš		úmaš-ta-kal
4	úan.ta.ki.ta		šá-ki-ru-u ²⁸
5	úuru _{i-ri} -ia-nu ²⁹		úur-ṭu-u
6	úuru _{ru} .ti.la ³⁰		úha-ru-bu
7	úa-ri. ^{bu} hu ³¹		úillu šar-bat
8	úza-mar sa ₅ sa-a za-mar sig ₇ ^{a-ru-[q]u} 32		úak-tam tur-a-zu du ₁₁ .ga ³³
9	úhab-ši-lu-ur-ga ³⁴		úmin nim. ^{e-lam5-} ki ^e
10	úti-la-a-kur-ta ³⁵		ú min Gu-te ^{1e} 36
11	ú sa-sam- sa ₅ ^{ru} mu ³⁷		úníg šu-me- gidru _{ru} 38

27 Not *iškūru* wax (the usual reading) but *tuhlu* / *tuhlam*, cf. KADP 2: 1–3 (= Uruanna I 3f.):

[ú in.nu]. ^r uš ^r	ú mal-ta-kal (coll.)
^r ú kur.ra ^r	min (also KADP 2: 5, ^r ú ^r e-li-lu ú min šá kur-i)
^r ú ^r tuh-la	min (also KADP 2: 7, ú in.nu.uš ú min šá kur-i)

28 This plant also occurs in KADP 2 11–15, but together with other plants identified as *šakirû*:

ú ^d šá-maš	ú šá-ki-ru-u
ú ár-zal-lu	ú min
ú ár-za-zu	ú min
ú an.ta.ki.ta	ú min
ú šakira	ú min

29 For the plant *iriyannu* corresponding to *urṭû*, and subsequent plants, cf. KADP 2 24–27:

ú a-ra-ri-a-nu	ú ur-tu-u
ú ^r e ^r -ri-a-nu	ú min
ú uru.til.la	ú ha-ru-bu
ú a-ri-hu	ú illu šar-bi-te

30 Cf. Uruanna I 183. For the meaning of the gloss, see the discussion above.

31 Cf. Uruanna I 225. The gloss may suggest an alternative reading of a plant *ar'ibu* (Uruanna II 116).

32 The final sign of the gloss (*qu*) actually appears in the right column. Cf. AMT 86,1 ii 12 f., which provides an example of this same phrase within a prescription.

33 This is a single explanatory line rather than two separate entries.

34 Cf. Uruanna III 102.

35 The plant *tillaqurdu* also appears in KADP 2 I 34 (= ú min *Gu-ti-i*).

36 The final e is written smaller as a gloss, and the *te*-sign is written over an erasure.

37 The gloss seems to imply a writing of 'sesame'. Another possibility would be to read the gloss as *sa-ú-mu*, thereby associating this plant with a rare plant name *sa'u*, only known lexically. The plant name could be also be read *sāmu* (for 'red' plant), as glossed in l. 24 below, and in KADP 2 36:

ú sa-mu = ú níg gidru.

38 Cf. KADP 2 36 (ú sa-mu = ú níg gidru), and see the discussion above.

12	ú ^l lu-lu-un ^ú -tu ₄ ³⁹	ú ^a -r ^r a ^r -tu ₄
13	ú ^š i-ib-ru	ú ^z i-bu-u
14	ú ^r nín ^d a ^r 40 sig ₇	ú ^š u-mut-tú ú šá na-ah-šá-te ⁴¹
15	ú ^r bu-ša-nu ^r hab	ú ^m u-ra-á[r šá šà.t]úr ^{numun.tu dumu} 42
16	r ^ú r ^š i ^r -[i-ru] muš	ú [em]e.[muš] ⁴³
17	r ^ú ki-ru-u kiri ₆	ú n[i-nu-u]
18	r ^ú maš-ka-dù ⁴⁴	ú ^{el} -r ^{li} -[bu]
19	r ^ú um-mat _{pi} a.šà ⁴⁵	ú ^{pu} -qut-tú
20	ú ^h a-hi-in	ú min
21 ⁴⁶	min ú ^h i-me-ti	ú ⁿⁱ -nu-u
22	min ú ^q é-reb a.ab. [t]um- ba ^{ra} 47	ú ^{ka} im- a.ab. bu- ba 'u ti-am-ti
23	min ú šal mi ⁴⁸	ú ^š akira
24	min ú sa-mu sa ₅	ú ^{di} -ik-me-nu

25 ⁴⁹	nu ú in-bu gurun	kúr aš šir ^š ir nam.lú.u ₁₈ .lu a-me-lu-tú
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39 The ú-gloss suggests a phonetic reading (*luluttu* or *lulútu*).

40 See l. 28 below, glossed as *illüru*.

41 Cf. KADP 2 ii 13–16:

ú nín ^d a sig ₇	: ú šá-ki-ru-u šam-mu ni-šik ur.gi ₇
ú min	ú min šam-mu ni-šik muš
ú min	ú šu-mut-tú šam-mu na-ah-šá-ti

The parallel text gives this plant as a remedy against dog and snakebite as well as haemorrhage.

42 KADP 2 ii 19 (= Uruanna 400). See however CAD M/2 218 and 220, suggesting an alternative plant *murrānu* (equivalent in lexical texts to ú.šà.tur), but *murrānu* actually has other logograms (^{giš}ma.nu, etc.) not relevant to this context and the designation ú.šà.tur probably refers to its gynaecological applications.

43 CAD Š 150 cites Uruanna I 469 f., which adds another entry, *lišān kalbi*.

44 This entry also appears as *aškadu*, a thorny plant.

45 Another type of thorny plant (*ummat eqli*). The gloss is clear with no shading necessary (as in the copy) and provides an alternative reading, *ummat pi eqli*, ‘weeds(?) at the entrance of the field’.

46 This and the following lines (22–27) begin with a gloss notation (not in Köcher’s copy), either min (2) or nu (‘not available’). These glosses probably represent the numbers of *Vorlage*-texts which the scribe had use of with these particular entries, ie. either multiple copies or no copy at all. Otherwise, no notation was necessary.

47 The gloss appears to give *tumru*, ‘ash’, as the opposite of ‘sea’, perhaps suggesting that the algae also look like floating ash. Cf. Uruanna I 664, ú šá-mi qé-reb tam-ti = ú im-bu-u tam-ti.

48 The šal sign is small, like a gloss, giving the option of reading šal-mu ‘black’, or Sum. ^{šal}ge₆ ‘black’ with a phonetic gloss šal.

49 Lines 25–29 represent *Deckname* for *Dreckapotheke*, in this particular case human testicles, human bone, or various types of insects listed, which are all actually secret names for ordinary field and garden plants, as elsewhere in Uruanna III. The gloss /kúr/ on the /aš/-sign (usually interpreted for *pirištu* ‘secret’) could stand for *ahû*, ‘non-canonical’, but this is not certain. This passage will be discussed in a forthcoming PhD dissertation from Maddalena Rumor.

26	min ú <i>eq-li</i> lag.a.šad ⁽¹⁾	aš <i>gal-ga-al-ti šá</i> kur-i ⁵⁰
27	min ú ^{giš} kiš ₁₆	aš min <i>šá hal-li</i> an[še] ⁵¹
28	ú ^{il-lu-rù} nínda	aš <i>i-šid bu-k[a-ni]</i>
29	ú níg.gidru ^{šu-me-rù}	aš <i>gir.pad.du</i> ^{šu-me-rù} [lú]
30	ú ¹ gi-lim	ú ¹ búr ^{pa-šir} [kiš-pi uš ₁₁] ⁵²
31	ú útul ¹ (text: áb) <i>ar-za-nu</i> ^{si-ih-pu} ⁵³	ú[.....]
32	ú <i>aš</i> ^{áš} - <i>har</i> ^{ha} zu ^{ár} ⁵⁴	ú ¹ <i>m[i-iq-ti ha-am-mu a.meš]</i> ⁵⁵
rev.		
33	ú ¹ <i>pi-ia-pi-ia</i>	ú ^r <i>pi-¹</i> x [.....]
34	ú ¹ <i>ul-mu-a-ru</i> ⁵⁶	ú ¹ <i>u₄¹</i> [.....]
35	na ⁴ <i>hu-ú</i> ^{ub-} ^{gir} - <i>ba</i> ^{numun} ⁵⁷	<i>ina</i> sag ^{qaq-qa-} l[ú ^{du} gar]
36	ú <i>ina</i> ugu-šú <i>muš.dím.gurun.na ir-tab!-bi-š</i> [u ⁵⁸ <i>ina</i>] <i>šá-maš</i> ^{gi duh} ⁵⁹ <i>na-me-rù</i>	
37	ú ¹ <i>eme.ur.gir</i> ₇ ^{šu-me-rù} <i>mu.ni ana munus</i> ^{sin-niš-tú} <i>nu</i> ^{la} <i>ù.tu sig</i> ₅ ^{da-me-eq} ⁶⁰	
38	ú ¹ sag ^[i-pil-ti] <i>buru</i> ₅ .meš ⁶¹	<i>uš.meš-šú</i> ^{re-du-ú-šú}

50 There may be a pun here on *galgaltu*, ‘hunger’, which might suggest a picturesque name for an insect causing ‘hunger in the hills’.

51 Another insect, as above?

52 Cf. Uruanna II 404, *ú kiš-pi pa-šá-ri* = *ú igi.lim*, cited CAD P 237 (with no reference to another source). KADP 2 40 has *ú im-[h]u-ur lim* = *ú [...]*. This description of the popular *imhur-lim* plant as ‘anti-witchcraft’ may simply confirm its use as a panacea.

53 The term *sihpu* is synonymous with *quliptu*, ‘barley husk’ (see Hh XXIV 163a–163b, MSL 11, 83). It is likely that the *áb*-sign here is an error for *ú*tal (KAM), a designation of a soup (*ummaru*). Eating barley groats soup (*ú*tal ar.za.na) was a topic in dream omens (cf. Oppenheim 1956, 315: 4–8), but also featured in medical recipes (e.g. BAM 123, 5) and barley held a prominent place in Hippocratic regimen, cf. Jouanna 1999, 163–164, both as a soup and cakes.

54 Uruanna II 341 has *ú aš-har zu* : *mi-iq-ti ha-am-mu a.meš*, cf. CAD M/2 104, presumably referring to an obstruction of a pond or waterway. The glosses *áš*, *ha*, and *ár* are phonetic (for *ašhar*).

55 This is an explanatory phrase rather than a separate plant entry.

56 KADP 2 v 30 reads *ú ul* (gloss: *mu*) *a-ru* (coll.), perhaps to be understood as a plant ‘not to be vomited’, with the problematic *mu*-sign kept as a gloss.

57 The gloss is intended to read *numun kiš₁₆*. The second entry is an explanatory phrase defining *hubbu*. Cf. also KADP 2 v 34’–35’:

ú ugu-kul-la *šam-mu a-na ka-šú sig⁷*
 ab-nu hu-bu ina sag.du ‘lú’ *gar-an*

According to this variant, the *hubbu*-stone is used with the *elikullu*-plant, here described as good for the mouth (or teeth).

58 See KADP 2 v 40’–41’: *šam-mu ina muh-hi-šú* *muš.dím.gurun.na ra-ab-šu*, but a more detailed description is given in this parallel text.

59 An altar (*pařiru*) for incense.

60 Note that the gloss *šumeru* rejects the reading *lišān kalbi* for the plant name *ú.eme.ur.gir₇*, while the remaining glosses normalise all the logograms as Akk.

61 Perhaps an intended pun on the plant *šēp āribu* ‘crow’s foot’, which may have a variant *lipištu* (Hg. D 215–218 [commentary to Hh XVII] = MSL 10, 104–105).

39	úúkuš ^{ak-šú-u} muš.dím.	gurun.na uš.meš-šú ⁶²
40	giš ^h a.lu.úb pi-ṭi-ir ⁶³	^d 60 ina id kana ₅
41	giš ^g geštin min	^d nin.giš.zi.da
42	^r giš ^ṭ [pè]š min	
43	ú ^{sa} - ^r ap-šu ⁶⁴	ú a-ri-hu mat-qu ⁶⁵
44	ú ⁿ inda ^r sa ₅ ^r sa-a ^ṭ	ú a-ba-at gur- _{kur} rú
45	ú ^{tál} tal? - ^{tál} - ^r la-an-nu ^ṭ	ú ^ú - ^r ra ^ṭ -nu
46	na ⁴ ^r kala.ga ^ṭ	min na ⁴ ^{pi-i} ka gal ₄ .la ⁶⁶ : na ⁴ níg.sa ₆ .ga
47	na ⁴ ki.nam.an.na ^{na4-er-rù 67}	na ⁴ har. ^{ha-ar-mu-nu} lum.ba.šir : na ⁴ šal-š ^a - al-tú tú
48	na ⁴ r ^{kišib} ^d še.tir ⁶⁸ ^r šá ^ṭ pu- ^r tu ^ṭ	na ⁴ ka-ra-ri ⁶⁹ na ⁴ šu-u
49	na ⁴ zabalam ^{ki}	mu ⁷⁰ na ⁴ šuba sig ₇ : babbar-u
50	min [zabalam ^{ki}].gal	na ⁴ a-ni-bu bur-ru-mu ana šu-kut-tú ⁷¹

62 Cf. KADP 2 v 52'–53': ú na áš (?) [aš muš.dím.guru]n.na
re-du-šú tur-[ár súd] ^ra^ṭ-na min

63 The expression an.kud = pi-ṭi-ru ša šá-[me-e], which resembles our passage, occurs in a lexical fragment only preserved at Emar (Arnaud, Emar VI.4, 567, 5'); the Emar lexical fragment contains other such terms, e.g. an-dím = il-di šá-me-e 'horizon' and an-a-šâ-ga = qé-re-eb šá-[me-e], 'midst of heaven'. The rubric for this section (7') is [a]n-dagal = ša-mu-u r[a-ap-šu-tu], 'broad skies', which does not explain one entry which differs from the other in this context (6'): an-kud-kud = al-lu-ta-nu, 'crab-like', perhaps referring to a plant.

The translation is provisional and speculative, based on the idea of the 'cleft' of Anu referring to some body part, e.g. buttocks or bottom, and this is transferred to the natural world in which the 'bottom' of heaven is hidden by a river, presumably at the horizon.

64 The reading *sapšu* or *sabšu* for this plant is a *lectio difficilior*, perhaps derived from *šapāšu*, 'to twist', with the meaning partly derived from a lexical equation with Akk. *egēru*, 'to twist' (see CAD Š/1, 449a). A different reading can be found in KADP 2 VI 21: ú šá mu-šu = šam-mu mat-qu, (plant) 'of discharge' = 'sweet plant'.

65 See Uruanna I 682 (cited only in CAD A/2 232) in which ú a-ri-hu mat-qu occurs, but as 'sweet arihu-plant', as an alternative to *arariānu*. The *arihu*-plant occurs above in l. 7.

This and the subsequent line have interesting variants in KADP 2 vi 21'–23':

ú šá mu-šu šam-mu mat-qu
ú i-lu-ur sig₇ú šá-ki-ru-u
ú min sa₅ ú a-bat a-gur-ru

The term *abattu agurri* probably refers to a species of flower.

66 Akk. *biššūru*.

67 The gloss has an unusual orthography for *nīru*, 'yoke'.

68 The final tir sign is a ligature, and the gloss *ša pūtu* on the *pendū*-stone may simply be referring to a similar but rarely-attested stone (*pūtu*) which can occur in medical contexts (AMT 102 i 31, cf. CAD P 553a).

69 An error for *kašaru*, cf. MSL 10 69:8 (= Uruanna III 147), corresponding to na₄.balag.gá = na₄ka-ša-ri. See also Schuster-Brandis 2008, 405.

70 The mu-sign (coll.), situated within the column dividers, probably corresponds to the use of *aššu* in commentary texts, indicating an explanatory phrase.

71 Cf. MSL 69, 12.

51	na ⁴ <i>a-lal-lu</i> ₄	na ⁴ <i>mu-ṣal-ṣa-al tú</i>
52	na ⁴ <i>sal</i> ^{sa} .la ⁷²	na ⁴ <i>mul-ta-as-hi-ip-tú</i>
53	na ⁴ <i>šà.níg.kala.ga</i>	
54	na ⁴ <i>mu-ṣu</i> ^{sin-ni-} mí ^{šú}	na ⁴ <i>za-gi-id-du-ru-u</i> ^{gír}
55	na ⁴ <i>sikil nita</i> ⁷³	na ⁴ <i>it-ta-mir nu sig</i> ₅
56	na ⁴ <i>har zabar nam.lú.u</i> ₁₈ ^{šú-me-rù}	na ⁴ <i>šà bir-ki lú</i> ^{a-me-li} ⁷⁴
57	na ⁴ <i>mu-ṣu šá ú-ru-ul-la-ti-šú</i> ⁷⁵ :	<i>pap-</i> ^{ba} <i>pal-tu šá šir nam.lú.u</i> ₁₈ ⁷⁶
58	^{na⁴} <i>ia</i> ^{bu} - <i>ra-hu</i> ⁷⁷	na ⁴ <i>šuba sa</i> ₅ ^{sa-a} : na ⁴ <i>huduš</i> (TU)
59	^{na⁴} en.gi.sa ₆ :	na ⁴ <i>ši-</i> ^{še} <i>gu-ga-ru</i> ^{na⁴} <i>ma-ah</i> : ⁷⁸
60	[<i>lul-m</i>]u ^r u ^r <i>ab-nu</i> :	<i>a-na-tú</i> : <i>an-ṣab-tú</i>
61	[^{na⁴} <i>ši-i</i>]k-ka-tu ₄ : <i>im-bu-’u-u</i>	
	left edge: ^ú šá- ^r ra ^r -nu ^ú kur-s[is-s]u ⁷⁹ [.....]	
	<i>ka-a-a-[ma-nu]</i> x <i>ak</i> x x <i>šá</i> x [.....]	

Translation

1	wax	<i>maštakal</i>
2	<i>ēlilu</i> (‘purifyer’)	ditto, from the mountains
3	ina.uš (gloss: ‘you purify’)	<i>maštakal</i>
4	‘from heaven and earth’-plant	<i>šakirû</i> -plant
5	<i>iriyannu</i> -plant	<i>urṭû</i> -plant
6	uru.ti.la-plant	<i>harûbu</i> (carob?)

72 See the discussion above.

73 The evidence that this logogram refers to the *arzallu*-stone is uncertain, based upon as yet unpublished reconstructed readings and relying upon an equation between the *arzallu*-stone and the *itemir*-stone in Uruanna 164 and 167, cited CAD A/2 324.

74 See MSL 9 35, 71 (Hg commentary to Hh XV, na₄.har zabar nam.lú.u₁₈.lu = na₄ bir-ki lú). The glosses in this line are discussed above.

75 Cf. also KAR 92, 20 and BAM 444, 5’, igi nu níg.sila₁₁.ga mu-ša šá lib-bi ú-ru-ul-la-ti-šú šéš-áš, ‘you rub the discharge of his glans over a dough-figurine’, with *pappaltu* in our list being synonymous for semen. It is likely that these phrases are cited from actual prescriptions and describe calculi.

76 This same line occurs in a medicinal stone list (MSL 10 70, 32 Hh XVI Recension A/B) as well as in a list of body parts (Hg. commentary to the uzu-list Hh XV = MSL 9 35, 70): uzu mu-u-šú = šá lib-bi ú-ru-ul-la-ti-šú = *pap-pal-tu šá bir-ki lú*, which defines the relationships more precisely.

77 The gloss provides an alternative reading *burāhu*, ‘shining’.

78 The signs /*ma-ah* : / are an abbreviation for *mahrītu*, cf. MSL 10 70–71, 36 and 62.

79 This line is cited in a medical commentary (to BAM 311), CT 41 43, 12 (BM 54595), ‘ša^r-ra-nu = *kur-sis*¹-s[u]. The term *kursisu* refers to a field pest, and the full name of this plant is explained by its logogram pēš.še.giš.i.gu_re (Hh XIV 192 = MSL 8/2, 22), which is also known from an OB omen apodosis (YOS 10 35, 29) *ku-ru-si-sú* še.[giš.ī] *ma-tim i-ka-al*, ‘the flax of the land which the rodent devours’. The remainder of the line, for which only barely visible traces survive, probably refers to how this plant was administered, as found in recipes.

7	<i>arihu</i> (var. <i>ar'abu</i>)-plant	poplar resin
8	'suddenly red, suddenly green'-plant = <i>aktam</i> -plant, also called <i>tur'azu</i>	
9	<i>habšilurga</i> -plant	ditto, Elamite
10	<i>tillakurtu</i> -plant	ditto, Gutian
11	'red'-plant, gloss: sesame(?)	'shepherd's-crook'-plant (gloss: Sum.)
12	<i>luluntu</i> -plant	<i>ara(n)tu</i> -grass
13	<i>šibru</i> -plant	black cumin
14	green <i>illūru</i> -flower	<i>šumuttu</i> , a drug for haemorrhage
15	hab-plant (gloss: <i>būšānu</i>)	<i>murāru</i> ('bitter herbs') for the womb (gloss: 'infertility')
16	'snake'-plant (gloss: snake)	['snake tongue'-plant]
17	herb (gloss: 'garden'-plant)	<i>nīnū</i> -plant
18	<i>maškadu</i> -plant	<i>ellibu</i> -plant
19	'thorny field'-plant	<i>puquttu</i>
20	'thorny'-plant	ditto
21	(gloss: 2) 'butter'-plant	mint (<i>nīnū</i>)
22	(gloss: 2) 'midst of sea'-plant (gloss: ash)	algae (gloss: Akk.)
23	(gloss: 2) 'black'-plant	<i>šakirū</i> -plant
24	(gloss: 2) 'red'-plant (gloss: red)	'ash'-plant
<hr/>		
25	(gloss: none) 'fruit'-plant	(gloss: other) Deckname: human testicle (gloss: mankind)
26	(gloss: 2) 'field'-plant (gloss: clod)	Deckname: mountain <i>galgaltu</i>
27	(gloss: 2) camelthorn (<i>ašāgu</i>)	Deckname: ditto of donkey crotch
28	<i>illūru</i> (Akk. gloss)	Deckname: bedbugs
29	'shepherd's crook' (gloss: Sum.)	Deckname: [human] thigh-bone (gloss: Sum.)
<hr/>		
30	<i>imhur-lim</i> ('it opposes 1000 [illnesses]'-plant 'spell-breaker' (gloss)	
31	barley-groats gruel (gloss: husk)	[.....]
32	<i>ashar</i> (phonetic gloss)	algae detritus on water
rev.		
33	<i>piyapiya</i> -plant	<i>pi</i> [.....]
34	<i>ulmuaru</i> -plant	<i>u</i> [.....]
35	<i>hubba</i> -stone (gloss: acacia-seed)	[placed] on the patient's head (gloss: head)
<hr/>		
36–37	a plant on top of which geckos lie in the bright sun (gloss: an altar-table), its name is 'dog-tongue' plant (gloss: Sum.), good for a woman who cannot give birth (gloss: good for a woman).	
38	Sag (gloss: <i>lipištu</i>)-plant	which crows pursue,
39	colocynth (gloss: <i>akšū</i>)	which geckos pursue.
<hr/>		

40	oak, Anu's 'clef' (ie. buttocks)	obscured in the river
41	vine, ditto	Ningišzida
42	fig, ditto	
<hr/>		
43	'folded'-plant	sweet-plant (gloss: <i>arihu</i> -plant)
44	red <i>illūru</i>	'baked-brick gravel' (-flower)
45	<i>taltallānu</i>	<i>urānu</i> -plant
<hr/>		
46	diorite	(gloss 2) 'vulva-opening' stones : 'beneficial'-stone (Sum)
47	yoke-stone (gloss: Akk. yoke) <i>harmunu</i> -stone (with gloss); 'quarrel'-stone	
48	'seal of charcoal'-stone (?)	<i>kararu</i> -stone: <i>šū</i> -stone
49	zabalam-stone	meaning: green : white <i>šubū</i> -stone
50	ditto, a large zabalam-stone	coloured <i>janibu</i> for jewelry
51	<i>alallu</i> -stone	gall-stone ⁸⁰
52	salla-stone	<i>multashiptu</i> -stone
53	'drum-heart'-stone(?)	
54	'female-discharge'-stone	lapis-stone
55	male <i>arzallu</i> -stone	not beneficial (for childbirth) <i>ittamir</i> -stone
56	'human <i>bronze bracelet</i> '-stone (-calculus) calculus from a man's genitals	
57	calculus of urethra	semen (lit. 'porridge') of human testicles
58	<i>jarahhu</i> -stone	red <i>šubū</i> -stone (gloss): <i>huduš</i> -stone
59	<i>engišsu</i> -stone	<i>šigugaru</i> -stone; previous stone
60	earring-stone	ring : (ear)ring
61	stone-jug	flask
	left edge: <i>šarānu</i> -plant, rodent-plant [.....]	
	left edge colophon: regular meaning [.....]	

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⁸⁰ A pun on gallstone.

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Compendia and Procedures in the Mesopotamian Astral Sciences

Abstract: This contribution surveys the most important compendia and procedure texts for the Mesopotamian astral sciences, including *Enuma Anu Enlil* (EAE), *MUL.APIN*, the astronomical diaries and procedure texts. The protases in *Enuma Anu Enlil* have often served as a particularly important arena for discussing empirical observation in the Mesopotamian sciences and this paper speaks to the well-known occurrence of impossible phenomena in compendia such as this. The astronomical diaries also represent a particularly important type of astronomical compendia in ancient Mesopotamia, since they collected and compiled short-term reports from a wide range of different scribes over a given six-month period of time. The paper concludes with a brief discussion of procedure texts that were used for astrological predication such as TU 11.

1 Introduction

In this contribution I explore the role of compendia and procedure texts in the Mesopotamian astral sciences. I use the term compendium in the sense of a more or less comprehensive composition about a technical or scholarly discipline. Compendia typically consist of multiple sections and they often include different textual formats such as lists, tables, explanations, instructions and examples. Handbooks are compendia that provide significant information about the operational aspects of a discipline, while procedure texts consist mainly of instructions. Mesopotamian compendia and procedure texts for the astral sciences cover the four basic activities of observation, interpretation, prediction and computation. My aim is to characterize content, structure, function and formulation of some important compendia and procedure texts. The following issues will be raised: for which astral discipline was the text composed? Which practical, pedagogical or other considerations underly the structure of the text? In what sense does it function as a compendium? How comprehensive is it in relation to the full range of knowledge and skills constituting the astral discipline? What formats and grammatical structures are used? Does the text include rules or instructions and, if so, how are they formulated? How was the text used in practice and what other texts were consulted? What role did the text play in shaping or perpetuating the discipline? How are empirical data stored, processed and utilised in the text or in the predictive methods associated with it? How does this vary between the different methods and can we relate this to the development of compendia and procedure texts?

2 Celestial divination: the omen compendium Enūma Anu Enlil

Celestial divination, the earliest form of Mesopotamian astral science, is based on the notion that the gods communicate with man through signs. For the diviner, the observation of a celestial phenomenon was only the starting point of a complex hermeneutical procedure. A characteristic feature of Mesopotamian divination is that it operates mainly on the basis of texts. From the end of the 2nd millennium BCE, the central composition for celestial divination was the omen series Enūma Anu Enlil (EAE).¹ With the exception of Tablet 14 (see below) and the prologue of Tablet 1, the approximately 70 tablets of EAE consist exclusively of omens – statements of the kind ‘if X then Y’, where X is the protasis, a description of a celestial phenomenon, and Y is the apodosis, the associated prediction. EAE can be viewed as a compendium for celestial divination in the sense that it was the main repertory of celestial omens that was consulted by the astrologers. The look-up function of EAE is confirmed by the reports of the Assyrian diviners, in which they frequently quote omens from EAE. The structure of EAE is optimized for looking up omens for a given phenomenon. Tablets are arranged into four main sections, each of which is devoted to a celestial entity or a class of entities. Some are divided into subseries concerned with a particular phenomenon. The lunar section (Tablets 1–22) consists of the subseries ‘Appearances of the Moon’ (Tablets 1–14) and Tablets 15–22, which deal with lunar eclipses. Likewise, the solar section (Tablets 23–39) includes a coherent group of tablets about solar eclipses (30–36). The third section (40–49) deals with meteorological phenomena, the fourth (50–70) with stars and planets. Each tablet is numbered and identified by an incipit. The incipits were listed in catalogues that were kept in the same libraries.² Finally, omens with similar protases usually follow one another and each omen is graphically marked by a vertical wedge (DIŠ) near the left edge of the tablet. Each of these features serves the practical purpose of guiding the diviner to the relevant omens for a given phenomenon.

Tablet 14 is exceptional, however, since it does not contain omens but numerical tables, e.g. for the length of daylight and the duration of visibility of the Moon.³ It is nevertheless an integral part of the subseries ‘Appearances of the Moon’ and not an astronomical insertion disconnected from the omens. As stressed by D. Brown (2000), Tablet 14 should be understood as a collection of computational tools for the diviner. Whereas Brown proposes that the tables represent ideal

¹ For a reconstruction of EAE, see Weidner 1941–4, 1954–6, 1968–9. Approximately 1600 tablets and fragments with celestial omens are listed in Reiner 1998, the bulk of which belong to EAE. Currently (2013) about 40 of the 70 tablets of EAE are available in a modern edition. For an introduction to Mesopotamian celestial divination, see Koch-Westenholz 1995.

² Fincke 2001.

³ George & al-Rawi 1991/2.

schemes corresponding to favorable situations, such that deviations from them define unfavorable situations, Rochberg (2004) and others propose that they were predictive tools (see also Rochberg's contribution in the present volume). The precise manner in which Tablet 14 was put to use remains to be established – this may be achieved in a future investigation of the connections between Tablet 14 and two other compendia for celestial divination, MUL.APIN and the Diviner's Manual (see below).

3 Celestial divination: the Diviner's Manual

Tablet 14 is one more instance where it becomes apparent that EAE does not provide any operational guidance to the hermeneutical procedures of the diviners. While we can learn something about such procedures from the above mentioned letters and reports of the Assyrian diviners, what interests us here is whether this operational knowledge was available in the form of handbooks or procedures.⁴ One of the few extant instructional texts concerning celestial divination is the Diviner's Manual, a short composition filling a single tablet preserved in twelve Neo-Assyrian fragments from Nineveh.⁵ The bulk of the text is occupied by two lists, one containing eleven incipits of tablets with terrestrial omens, the other twenty-five incipits of tablets with celestial omens. In between and after the lists there are short explanations and instructions of a general kind, including the following well-known passage:⁶

A sign that is evil in the sky is evil on earth; one that is evil on earth is evil in the sky. When you investigate that sign, whether of the sky or of the earth, if the evil of that sign is confirmed(?) then it exists for you (as a sign) for hostility or for death or for famine. Check the time interval of that sign and should no (other) sign exist as a countersign and should no annulment take place, then one cannot make it pass by, its evil cannot be removed: it will approach.

The extant copies of the Diviner's Manual probably originate from the same libraries in Nineveh where tablets of EAE and the letters and reports of the Assyrian diviners were stored and they date from the same period. Nevertheless this text does not appear to describe divinatory practices centered around EAE. The listed

⁴ This situation may be compared with extispicy, where a large corpus of commentaries (*multābiltu*) and handbooks (*niširtu*) exists alongside the main omen compendium. Unlike the handbooks for celestial divination, Koch 2005 concludes that the handbooks for extispicy did not serve a practical purpose. Instead they are said to represent "a step towards abstract thinking, (...) a search for clarity divorced from the everyday aspect of extispicy".

⁵ Oppenheim 1964.

⁶ Translation slightly modified from Oppenheim 1974.

omen tablets are largely unidentified and EAE is not among them. Furthermore, in the final section the meaning of celestial signs is said to depend on their timing, which is quoted by Oppenheim as further evidence that the Diviner's Manual belongs to a separate branch of celestial divination. However, other arguments suggest a closer relationship to divinatory practices of the Neo-Assyrian era than assumed by Oppenheim. In particular, the final section is closely related to parts of MUL.APIN, a contemporaneous handbook for celestial divination (see below) and some of the astronomical phenomena mentioned there, e.g. the visibility of the Moon, are also dealt with in Tablet 14 of EAE. These often overlooked connections between astronomical computation, time measurement and celestial divination in MUL.APIN and within EAE itself suggest that the Diviner's Manual may be closer to common divinatory practices of the Neo-Assyrian era than sometimes claimed.

4 Empirical aspects of the celestial omens

It is generally accepted that the connections between protases and apodoses are constructed,⁷ but the empirical nature of the protases themselves requires further qualification. While many of them appear to be straightforward descriptions, others contain metaphoric or obscure expressions. As pointed out by Rochberg (1996), both types of protases are quoted in the letters and reports of the Assyrian diviners, where they equally function as descriptions of celestial phenomena, regardless of their formulation – direct, metaphorical, ambiguous or obscure. One special category that has continued to baffle modern scholars is formed by apparently impossible phenomena – for instance “If a (lunar) eclipse occurs on the 20th of month IV”.⁸ They are commonly believed to have been constructed in order to achieve some enhanced form of completeness or systematisation and not for divinatory purposes. As an alternative interpretation, I would propose that the distinction between direct and metaphorical protases may be problematic. As suggested by learned commentaries (Frahm 2011) and by the letters and reports of the diviners, any protasis, however obscure or metaphorical or, conversely, however unambiguous and direct, could be subjected to hermeneutical substitutions. It was the task of the diviner to connect an observed phenomenon with the available protases, either by straightforward identification or through some speculative substitution. In this view no protasis is necessarily impossible, since it might always be connected with an observable phenomenon by a sufficiently ingenious diviner.

⁷ Brown 2000, in particular Ch. 3.

⁸ For this omen from EAE Tablet 16, see Rochberg 1988, 96. For impossible omens, see also Brown 2000, 136–137.

The protases of EAE cover a dense web of lunar, solar, planetary, stellar and meteorological phenomena. Accordingly, celestial omens quoted in the letters and reports of the Assyrian diviners rarely fall outside the scope of EAE, which suggests that the diviners themselves viewed EAE as more or less complete.⁹ The fundamental role of EAE also expresses itself in the widespread usage of its protases for representing phenomena in the reports of the diviners and elsewhere.¹⁰ In divinatory contexts celestial phenomena are usually not described directly but by quoting omen protases, i.e. they define a semantic system for reporting phenomena. In this way, EAE shaped all Mesopotamian discourse about celestial phenomena.

5 MUL.APIN as a compendium for celestial divination

The composition MUL.APIN ('Plough Star'), which occupies two tablets, is preserved in approximately 40 fragments from Nineveh and various sites in Babylonia dating between the 7th century BCE and the Seleucid era.¹¹ Some of the data in MUL.APIN go back to 1200 BCE, about the same time when EAE was composed, but most scholars believe that it was compiled after 1000 BCE. MUL.APIN is divided into numerous sections covering different topics ranging from ordered lists of identities between stars and deities, astronomical tables, procedures for astronomical observation and computation,¹² and omens. While the purpose of most individual sections is rather well understood, that of the composition as a whole is not. A valuable contribution towards a holistic understanding of MUL.APIN was recently made by Watson & Horowitz (2011). By using a cognitive perspective they were able to show that the astronomical sections exhibit a systematic development towards increasing cognitive complexity. However, MUL.APIN is not an astronomical treatise. Several sections with omens, in particular the final one, leave little doubt that the overarching purpose of MUL.APIN is to provide tools for celestial divination.¹³

9 The completeness of EAE is obviously subjective. Among the countless possible ways of isolating celestial phenomena for divination, the Mesopotamians chose a particular one. To give one example, the synodic phenomena of the planets play a prominent role in EAE, whereas the intermediate positions, where the planets spend most of their time, are underrepresented. The reasons for this particular selection are not clear.

10 For instance celestial phenomena quoted in Sargon's eighth campaign and other annals of Neo-Assyrian and Neo-Babylonian kings (Oppenheim 1960).

11 Hunger & Pingree 1989.

12 MUL.APIN contains the following procedures: section a (I iv 7–30): on the usage of *ziqpu* stars; g (II i 22–43): first intercalation rule and hemerologies; h (II i 68–71): observation of winds; j (II ii 7–17): second intercalation rule; k (II ii 41–42): shadow lengths; l (II iii 13–15): lunar visibility intervals.

13 Brown 2000, 116–120; Ossendrijver 2012b.

Nevertheless the manner in which each section was used by the diviners is often still unclear. At this point the limitations of MUL.APIN become obvious, since it offers little information about the practical aspects of divination. A detailed new investigation of MUL.APIN and other compendia for celestial divination may shed light on this issue.

6 Astronomical diaries and goal-year procedures

After 750 BCE the astral sciences underwent a series of profound changes in Babylonia, as evidenced by several previously unknown types of texts concerning the observation, prediction and interpretation of celestial phenomena. Astronomical diaries and related texts, the largest group among them, are the outcome of a program of observation probably initiated near 750 BCE. Most diaries are highly standardized compilations of astronomical, meteorological, economic and historical data for intervals of six months.¹⁴ The reported astronomical phenomena include the synodic phenomena of the planets, daily positions of the Moon and the planets with respect to reference stars, eclipse possibilities and the so-called Lunar Six, which are six time intervals between sunset or sunrise and moonset or moonrise near New Moon or Full Moon. While synodic phenomena and eclipses also feature prominently in celestial divination, some of the other phenomena did not receive any attention previously. Each diary is the end product of a complex data management operation in which short-time reports with different types of information, obtained from different scholars, were collected, evaluated, processed and compiled into the format based on six month intervals. Some stages of this operation can be traced through original reports and intermediate compilations covering shorter intervals of time, but handbooks or procedure texts about these operational aspects have not been discovered.

The diary project involved some notable changes in the reporting of celestial phenomena and the general character of the astral sciences. Compared to the omen texts (EAE), phenomena are now reported in a standardized, unambiguous terminology largely devoid of metaphoric expressions. Second, the balance between observing, predicting and interpreting celestial phenomena changes with respect to celestial divination. The sheer volume and complexity of the new texts with observations and predictions imply that the astronomers spent a larger fraction of their time and energy on reporting and predicting celestial phenomena rather than interpreting them. Although some compendia, e.g. the Seleucid tablet TU 11 to be discussed below, include both astronomical and astrological procedures, the main

¹⁴ For editions of the diaries, see Sachs & Hunger 1988–1996.

astronomical corpora (diaries, Goal-Year texts, mathematical astronomy) lack any reference to their astrological applications, which are dealt with in separate texts.

By about 600 BCE the astronomers who wrote the diaries had invented the so-called Goal-Year method, by which nearly all of the reported astronomical phenomena can be predicted. The Goal-Year method exploits the periodicity of these phenomena in the sense that they repeat in a future year, the Goal Year, near the same calendar date and celestial position, apart from small corrections, as in the year preceding the Goal Year by a period that is different for each planet. For instance, Venus phenomena repeat after 8 years, Saturn phenomena after 56 years, etc. All predictions for one Goal Year were collected on a single, so-called Goal-Year tablet.¹⁵ Since each prediction requires a previous record of the same phenomenon, the existence of the Goal-Year method explains why astronomical diaries continued to be produced. With the invention of this method, astronomical prediction evolves into a distinct activity with its own dedicated handbooks. As opposed to the compendia for celestial divination, in which a few scattered procedures were embedded in a bulk of omens, lists and tables, procedure texts are now physically separated from the individual predictions that were compiled on the Goal-Year tablets.¹⁶ The most comprehensive handbook with Goal-Year procedures known today is TU 11, a tablet from Seleucid Uruk.¹⁷ It is divided into 29 sections, of which sections 9–22 contain Goal-Year procedures, while the others are concerned with weather prediction, astrology and celestial divination. As an example here is a partial translation of section 16, a procedure for predicting the Lunar Six interval NA_N , which is the time between sunset and moonset after the conjunction of the Moon and the Sun:

In order for you to construct the value (of NA_N) for 36 (years): from month I of 36 (years ago) you turn back 6 months, 0;40 of $\check{S}U_2$ and NA for month VII you compute, you subtract it from NA for day 1 (= NA_N) of month I of 36 (years ago) ... (etc.)

The procedure is exemplified for month I but otherwise general. As explained by Brack-Bernsen & Hunger (2002), NA_N in month I of the Goal Year is obtained by copying its value from month I in the year preceding the Goal Year by 36 years and subtracting a correction involving the Lunar Six intervals $\check{S}U_2$ and NA in month VII of the year before that. It will be obvious that these densely formulated and highly technical procedures were hardly intelligible without additional instruction. All in all, TU 11 most likely functioned as a reference work and not as a self-explanatory manual. Furthermore, the mix of astronomical and astrological procedures on TU 11 reminds us that astronomical prediction, although now a distinct activity, was not carried out for its own sake, but for astrological purposes, apart from calendaric applications.

¹⁵ For editions of the Goal-Year texts, see Hunger 2006.

¹⁶ For a list of Goal-Year procedure texts, see Ossendrijver 2012a, 523.

¹⁷ Brack-Bernsen & Hunger 2002.

7 Procedure texts for mathematical astronomy

With the introduction of the zodiac near 400 BC and the subsequent invention of mathematical astronomy, Babylonian methods for predicting astronomical phenomena reached an unprecedented level of sophistication. The main product of mathematical astronomy are numerical tables with positions, times and other quantities of the Moon and the planets pertaining to successive occurrences of a synodic phenomenon or to successive days. These are essentially the same phenomena that were reported in astronomical diaries and predicted with the Goal-Year method. The algorithms underlying these tables are too complex to be memorised and were written down in the form of procedure texts. A few planetary tables include the corresponding procedures at the end of the tablet, but more often they were written on separate tablets. Since a detailed analysis of these tablets is presented elsewhere (Ossendrijver 2012a), it will suffice to recapitulate some aspects related to their role as handbooks. Some tablets contain only a few procedures for the Moon or a single planet, but others are true compendia containing up to 30 different procedures. Their composition is rather different for lunar and planetary procedures, which reflects the different levels of complexity of the algorithms. The lunar tables contain up to 18 columns, each representing a different quantity computed by some algorithm. Accordingly, some of the lunar compendia provide procedures for all successive columns of the tables. Compendia with planetary procedures typically contain alternative procedures for a single planet or similar procedures for different planets. Again, certain operational aspects are not explained, for instance the proper sequence of the procedures or the origin of initial values. Moreover, if one analyses the chain of operations constituting a procedure it turns out that they are often slightly laconic, in the sense that some small steps are left out. For all of these reasons these compendia cannot have served as self-explanatory manuals for producing astronomical tables. Instead, they must have been consulted as reference works by trained specialists or as didactic compendia in an advanced stage of education, in which case there must have been other, complementary forms of instruction.

The bulk of the extant procedure texts date from 300–150 BCE, when mathematical astronomy had reached full maturation. It is therefore not yet possible to trace the evolution of the procedure texts through the formative period (400–350 BCE). One identifiable trend is that earlier texts favor an example-based formulation, while later texts employ an abstract formulation in which mathematical operations are performed on named quantities of undetermined magnitude, as in the following lunar procedure (Text 61 in Ossendrijver 2012a):

You put down the position of the Moon and the position of the Sun. The displacement by which the Sun moved you subtract from the position of the Sun. The displacement by which the Moon moved you subtract from the position of the Moon. (The amount) by which the

position of the Moon and the position of the Sun exceed 10 degrees of the zodiacal sign you multiply by 0;0,16 ... (etc.)

This innovation constitutes a step towards increasing abstraction compared to Old-Babylonian mathematics, where a formulation based on numerical examples was used.¹⁸

8 Empirical aspects of mathematical astronomy

The derivation of mathematical astronomy from empirical data of the kind reported in astronomical diaries remains badly understood and beyond the scope of this paper. Even the question why mathematical astronomy was invented, while another functioning method was already available, cannot yet be answered satisfactorily. One may note that mathematical astronomy has two important advantages compared to the Goal-Year method. First, the role of empirical data is drastically reduced. Instead of a one-to-one correspondence between observation and prediction, only initial values are needed. Second, the time horizon of the predictions is not limited, because the algorithms generate arbitrarily long sequences of predictions. These are by themselves important advantages for astronomical prediction, but the stakes may in fact be higher than that if we consider their astrological implications.

9 Procedure texts for astrological prediction

Along with mathematical astronomy, new forms of astrology emerged in the 5th century BCE in which the zodiac played an important role. The physical separation between procedures and concrete predictions characteristic of the astronomical corpora is also implemented in the astrological texts, horoscopes being an example of the latter kind. Several compendia with previously unknown astrological procedures can be mentioned here. One example is TU 11, which contains both astrological and Goal-Year procedures. Two other remarkable tablets, also from Seleucid Uruk, are related to TU 11, but they lack astronomical procedures.¹⁹ Both begin with a unique ‘meta-procedure’ in which a range of astronomical phenomena is

¹⁸ Note however that the numbers in Old Babylonian problem texts are usually provided with attributes that imply a general validity of the solution method beyond its concrete numerical implementation (H. Brunke, private communication).

¹⁹ Hunger 1976a and 1976b.

said to signify the future development of a particular terrestrial phenomenon, in the following example the price of barley:

If you want to make a prediction for the *region* of the price of barley – broken – then you investigate the course of the planets and you observe the first appearance, the last appearance, the station, the acronychal rising, the passage, the faintness and the brightness of the planets and the zodiacal sign in which they begin to ascend and descend, then you make a prediction for your year and it will be correct.²⁰

This general statement is followed by a list of concrete correlations between astronomical phenomena and price developments. On the other tablet the same is done in relation to weather phenomena.²¹ Both compendia contain significant clues about the astrological applications of astronomical predictions. In particular, no other texts have been identified that answer the question as to why the synodic phenomena of the planets were observed and predicted. We can therefore deduce that it was of great interest for the astrologers to possess a predictive method as powerful as mathematical astronomy, since this would enable long-term predictions of market prices and other terrestrial phenomena assumed to be correlated with synodic phenomena. This may have been a major incentive for the astronomers to develop mathematical astronomy.

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²⁰ Hunger 1976a. Translation slightly adapted from that of Hunger. The significance of the term *region* (KI = *qaqqaru*) in the first line is not fully clear. In astrological contexts it usually means celestial position or zodiacal sign.

²¹ Hunger 1976b.

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Lennart Lehmhaus

***Listenwissenschaft* and the Encyclopedic Hermeneutics of Knowledge in Talmud and Midrash**

Abstract: The main goal in this paper is twofold: to investigate the literary form of lists and enumerations in the rabbinic tradition and then to characterize the scientific or encyclopedic traits visible in specific passages. In the first part of the paper I look at three distinct compositions that make extensive use of lists, usually to communicate ethical maxims, etiological explanations of Jewish ritual, or ‘scientific’ content, namely Seder Eliyahu Zuta, Pirque de-Rabbi Eliezer and Midrash Ma’asseh Torah. Texts such as these play a central role in mnemo-technical and didactic contexts and seem to have emerged from the oral context in which these materials were assembled. In the second half of the paper I turn to the Babylonian Talmud, in particular to the tractate Gittin’s ‘Book of Recipes’, which represents a rather homogeneous cluster of recipes for over 40 illnesses. These different types of lists and enumerations are situated in both the broad context of early Jewish scientific thinking and also in recent efforts to significantly revise or replace the old idea of a *Listenwissenschaft* in Mesopotamia.

1 Compendia, encyclopaedia and *Listenwissenschaft* in rabbinic discourse

Science in Judaism was not existent before the medieval and early modern flowering of scientific thinking stimulated by external developments in the surrounding Muslim and Christian societies. This would have been the standard answer among scholars of rabbinic traditions and Jewish history until very recently. Rabbinic tradition was conceived as anti-scientific following an “anachronistic understanding of ‘religion’ and ‘science’ as self-contained and mutually exclusive approaches to explaining the world and human experience”.¹ However, these assumptions have been challenged profoundly in the last two decades. Several studies of the scientific discourse on astrology in traditions from the Dead Sea (Qumran) have shown the intensity with which Jewish circles engaged in scientific discourses and epistemological practice in their Hellenistic and ancient Near Eastern cultural surroundings. Some scholars suggest that we should speak of a discrete development of ancient Jewish science with strong intercultural connections rather than downplay-

1 Reed 2014, 13. See also *ibid.*, 10–19 and Reed 2007, 461–495.

ing these achievements as mere adoption and borrowing.² Building on this point of view, Reed argues that a discourse of ancient Jewish science emerged from the cultural liaison of inner-Jewish (or local) and inter-cultural (or trans-local) networks of knowledge and their discursive formations.³

Another prevalent assumption among scholars of Jewish Studies is that there were no compendia and encyclopedias in rabbinic literature. To be sure, this holds true, if we classify them on the basis of present-day definitions. However, even recent scholarship on the most frequently mentioned foundational texts of the encyclopaedic genre, the *Natural History* written by Pliny the elder around 77 CE, has questioned certain, possibly anachronistic assumptions about the ancient encyclopedia. Thus, Aude Doody has argued that neither the *Natural History* nor works focusing instead on the educational disciplines (*artes liberales/enkuklios paideia*) belonged to a well-defined genre of encyclopedias, nor were they intended to be. Certainly, one can identify them as encyclopedic due to specific features and their later reception as encyclopedias. Still, ‘encyclopedia’ is a genre with a long history and the genre was readjusted to varying cultural contexts, each fraught with its political and ideological subtexts. Even among the Byzantine writers who intentionally produced medical encyclopedias one can detect controversial opinions about literary and intellectual conventions, the authority of texts, and strategies of summarizing and quoting.⁴

It seems that one cannot find in Jewish literature anything similar to an *encyclopaedia* before the early Middle Ages when Geonic and Karaite scholars produced biblical and Talmudic dictionaries and word lists. Finally, in 1101 R. Nathan ben Yehiel of Rome published his monumental hybrid work *Arukh* that oscillates between a dictionary of rabbinic languages and literatures and an encyclopedia of pertinent terms and ideas. However, one can also certainly observe implicit encyclopedic trends and traits in earlier rabbinic works and definitely in the geonic traditions on which the *Arukh* is based.⁵ The Babylonian Talmud can be described as an outstanding example of a corpus containing a richness and multitude of knowledge about the world and its structures. Yet, also in various other texts such as midrashim, Aramaic translations of the Bible (*Targum*) and especially in the mystical *Hekhalot* traditions an abundance of technical, scientific and social insights has been transmitted together with sophisticated hermeneutic and cognitive techniques.

² The two pre-eminent studies are Ben-Dov 2008 and Popović 2007. Both scholars have also published several articles on these subjects. The former assumption about the pre-scientific character of ancient Jewish writings can be found in Alexander 2002, 223–243.

³ Reed 2014, esp. 10–19.

⁴ See Doody 2009, 1–21. Byzantine encyclopaedic strategies have been aptly described by van der Eijk 2010, 519–554.

⁵ For the *Arukh* and its precursors, see Brisman 2000, 1–17.

Although the Talmud has been frequently qualified as ‘encyclopedic’, just two very brief and preliminary studies of the subject have been published up to now. Wout van Bekkum deals with Talmudic encyclopaedism only at the sidelines, while concentrating on the transmission of the oral traditions and how these oral traditions were put down in writing. In contrast, Dagmar Börner-Klein’s discussion elaborates on the encyclopaedic character of the Bavli with a focus on its didactic purposes. She argues that the associative logic of the Talmud and its collection of hermeneutic techniques were geared to different types of readers, ranging from the adept to the rabbinic master. Börner-Klein suggests that in the Talmud associative forms of knowledge prevail over systematic ones. In the following discussion these suggestions have to be taken into consideration, but also qualified at times.⁶

If one searches for other compendia in early Jewish tradition, several further possibilities come to mind. Among the texts from the Dead Sea as well as among the so-called apocrypha (*Enoch* traditions) we find texts with a specific scientific interest, which could be labeled as handbooks or manuals. Their main focus lies on cosmology and astrology while touching also on other related topics (like medicine). The book of *Sirach* might represent a connection between scientific thinking and other branches of the Wisdom traditions like *Proverbs* or *Ecclesiastes*. While the first group of ‘scientific’ texts is integrated in broader contexts like the Mishnah, Talmud or Midrash, we also find evidence for an enduring tradition of particular ethical texts. These traditions (*Pirke Avot*, *Avot de-Rabbi Nathan*, *Derekh Eretz Rabbah* and *Zuta*, *Kallah Rabbati*, and *Seder Eliyahu*) contain an abundance of descriptive and prescriptive information about human behavior conveyed in various didactic and literary formats.⁷ Hence, we cannot speak about technical compendia or handbooks in rabbinic literature in the strict sense of these terms, but one can definitely identify more technical types of material that were integrated into other texts, often with the help of lists. The earliest examples of lists, providing some historical or other types of information, appear already in the Bible as genealogies, lists of kings and priests, lists regarding the tribes of ancient Israel, about geography and about ritualistic elements.⁸ The use of lists to convey ethical ideas and knowledge about the order of the world can be found already in the biblical Wisdom traditions (*Ecclesiastes/Proverbs*), attributed to Solomon, and in the other ethical texts mentioned above.

In light of these similarities and differences, I would like to adopt a rather different point of departure in this paper. Earlier scholarship on the ancient Near

⁶ See van Bekkum 1997, 201–211 and Börner-Klein 2002, 113–120. The encyclopaedic character of the Bavli is reinforced by Stemmerger 2011, 213, who describes the text as a “national library of Babylonian Jewry”.

⁷ For the scientific post-biblical texts, see n. 1 above. The ethical traditions are surveyed in Schofer 2007, 313–335.

⁸ See Scolnic 1995.

East (in the following ANE) speaks of a ‘science of lists’ (*Listenwissenschaft*) as the governing principle for those texts that might be classified as compendia, manuals or encyclopedias in the widest sense. The concept of *Listenwissenschaft*, invented by Wolfram von Soden in the 1930’s, has transcended its origin within the specific discipline of Assyriology and has been integrated into various other fields of study, often without a critical evaluation of its presuppositions.⁹ In several recent articles the problematic character of the term *Listenwissenschaft* and its implications have been discussed. Von Soden’s idea was Eurocentric and, one may add, even racist in presupposing the superiority of Greek philosophical-argumentative, abstract and therefore scientific culture. He explicitly belittled Mesopotamian and other oriental cultures by assuming that they were incapable of scientific thinking, while reducing their efforts to a mere religiously induced mindset dominated by *Ordnungswillen* (‘will for order’) and aptly expressed in (lexical) lists.¹⁰ However, many studies have demonstrated that methodological thinking and scientific knowledge are always historically and culturally determined. ‘Science’ is thus described as a socially embedded cultural practice of creating, structuring and transmitting knowledge about the (empirical?) world. Moreover, even when lacking a proper concept of ‘science’ or a self-reflexive discourse about epistemological methods one might be able to discern in most cultures similar first- and second-order cognitive procedures (like sequencing, hierarchization, comparison, binary and oppositional thinking, abstraction, synthesis, generalization, etc.) for the acquisition of knowledge.¹¹

Recent studies of ancient Mesopotamian culture have proposed some new ways of approaching questions about ancient science(s) that may be useful in the context of the following analyses. Some scholars, like Cancik-Kirschbaum and Veldhuis, strongly argue for a shift from the proto-scientific impetus of the ‘science of lists’ (i.e. biology, zoology, astronomy, etc.) towards a ‘science of writing’ in which lexical structuring of natural phenomena has a decidedly didactic background in scribal and linguistic training. Thus, the constitutive role of (written) language as the primary medium for the creation and transmission of knowledge and science has to become the focus when analyzing ancient science(s).¹²

⁹ See von Soden 1936, 411–464 and 509–557. For a survey of the reception of this idea, see Cancik-Kirschbaum 2010, 13–18. Hilgert 2009, 277–309, esp. 277–282, discusses von Soden’s theory with the aid of extensive quotations and also provides a short survey of the use of *Listenwissenschaft* as a concept. Visi 2009, esp. 12–14, questions the uncritical adoption of this idea in other disciplines.

¹⁰ A scorching and ironical criticism of von Soden’s approach can be found in Veldhuis 1997, 137–139, esp. 137: “In origin, according to von Soden, the lists had to mirror the order of the world as it was established by the gods. The lists, therefore, had a cosmological background. The Sumerians, thus von Soden, were not able to codify their views in a coherent argument. Scholarship therefore never went beyond the level of the lists”.

¹¹ Cancik-Kirschbaum 2010, 19–33. See also Asper 2013, 2–5 and Rochberg 2011, 9–36.

¹² See Cancik-Kirschbaum 2010, esp. 19–21 and 38, Veldhuis 1997, 137–146. One must assume a central role of language in general – especially for a primarily oral culture like in rabbinic tradi-

One starting point, as proposed by Tamas Visi, could be Michel Foucault's 'archeology of knowledge'. The usage of lists in rabbinic scientific discourse could then be understood as a creation of patterns and concepts in the cognitive process, through which 'epistemologization' is described as a form of knowledge or 'science'. A similar approach has been described by Markus Hilgert, replacing the teleological concept of *Listenwissenschaft* with a dynamic model of culturally influenced epistemic practices. Of crucial importance is the function of lists (or texts) as artifacts, the material expression of epistemic conventions. This way of representing knowledge, thus, becomes part of the represented objects of inquiry with a possible impact on the cognitive act itself. This allows for the recognition of implicit knowledge by means of which we might be able to reconstruct scientific concepts or epistemologies.¹³

The methodological challenges and developments sketched out in the preceding section are also significant for our inquiry into the forms of (empirical) knowledge and science as represented in rabbinic lists. Jewish texts as a legacy and integral component of the ancient Near Eastern cultures have to be examined carefully with regard to their concept of language and their hermeneutic techniques. They form part and parcel of a Jewish scientific discourse, both as medium and method of knowledge acquisition. Annette Reed has summarized this approach as follows:

attention to choices of literary form and framing, as possible clues as to the different settings of "scientific" training and transmission; not just to consider the content of the extant records of "ancient Jewish sciences," but to ask what their literary context might reveal about the "context of transmission of scholarly knowledge" – "what textual formats or genres of scientific writings are attested? And what sort of authorial strategies did ancient Jewish scholars pursue?"¹⁴

Based on this agenda, the main goal of the following paper is twofold. In a combined approach I would like to study the literary format of lists from two points of view. First we have to analyze the main literary and rhetoric-didactic functions of this genre in various contexts. In a second step one can then consider the main scientific or encyclopaedic traits of such passages. This allows for an exploration of lists as devices for the (re)presentation of scientific, empirical or speculative knowledge, while paying respect to its literariness and discursive embeddedness.

tions. However, the written artifacts are the only available source, since almost all of the previous oral transmission is lost and even information about this type of discourse is only seldom found in the surviving sources.

¹³ Hilgert 2009, 283–291. See also the concise discussion in Cancik-Kirschbaum 2010, 19–21, here 20: "Das Medium der Darstellung kann dabei über seine primären Funktionen, z. B. Speicherung und Übermittlung, hinaus selbst Teil der Argumentation werden. In der Überlieferung konvergieren also Gegenstand, Erkenntnis und Darstellung". See also Cancik-Kirschbaum 2012, 125–151.

¹⁴ Reed 2014, 25, while discussing Popović 2010, 81–114, here: 83.

2 Lists in rabbinic traditions as *Listenwissenschaft*?

In the following some of the questions and aspects mentioned above will be addressed in greater detail by taking a deeper look into the rabbinic hermeneutics of enumeration and lists. Due to the multifarious character of rabbinic literature, viz. the different types of text that it includes such as Mishnah, Talmud, and different forms of Midrash, this task probably will not produce a coherent picture. Rabbinic traditions are manifold and were transmitted orally over the course of centuries before distinct corpora (e.g. a Midrash to *Genesis*) were compiled and written down. Although in most texts an abundance of attributions to named sages can be found for specific teachings, the documents as such (i.e. the *Mishnah*, the *Tosefta*, Midrash to *Genesis*, etc.) are the product of a collective literary and editorial enterprise rather than the work of a single author. Moreover, older assumptions about the cultural dominance of the rabbinic class and the representative nature of their discourse among all Jews in Late Antiquity have been critically reevaluated in recent studies.¹⁵

Thus, in light of this great variety and the possibly biased character of rabbinic texts, the sources discussed here cannot be seen as comprehensive. Lists and enumerations can be found in almost every rabbinic text in varying forms. Lists constitute an important literary device in the so-called ethical traditions and midrashim (like *Pirke Avot*, *Avot de-Rabbi Nathan*, *Derekh Erets*, etc.) Unfortunately, scholarly interest in the topic has been rather scant and is confined to just a few studies.¹⁶ Wayne S. Towner wrote an important study on a very specific type of list in early midrashic literature. He analyzed the so-called ‘enumeration of scriptural examples’ in this tradition and compared it with lists in earlier Jewish (biblical and apocryphal) and other Near Eastern literatures. Jacob Neusner did not dedicate a full study to the subject of lists, however, he conceives *Listenwissenschaft* to be one of the governing principles behind the argumentative structures in the *Mishnah* and, with limitations, also in the early midrash of *Sifra*.¹⁷

¹⁵ The most comprehensive and well-balanced studies regarding the role of the rabbinic sages in Jewish life in Late Antiquity are Hezser 1997, Miller 2006, and most recently Lapin 2012. On the variety of Jewish literature in Late Antiquity, see Alexander 2011, 7–24.

¹⁶ Important work has been done already by Wünsche 1911. Other studies include Nador 1962 and Jacobs 1983, 137–149.

¹⁷ See Towner 1973. See also Neusner 1990, 317–321; here 317: “The logical basis of coherent speech and discourse derives from *Listenwissenschaft*. The paramount mode of reasoning in the *Mishnah* is ‘analogical contrastive reasoning’. The logic may be expressed very simply. All persons, things, or actions that fall within a different species of that same genus follow a single rule. All persons, things or actions that fall within a different species of that same genus follow precisely the opposite rule. Reasoning by analogy and contrast dominates in the formation of the *Mishnah*’s rules, and is, therefore, its generative mode of thought”.

Roy Shasha has provided in his dissertation the first comprehensive form-critical study of lists as a literary device in the Mishnah.¹⁸ He defines a list as a structured textual unit starting with a caption containing a deictic (“these are they”/ *we-’ilu hen*) or a numerical reference to the items following within the list. Lists can be simple ones or they appear as compound lists in which several lists are combined or in which more than one topic is addressed.¹⁹ Although he denies an encyclopedic or even inventory character or function for the lists in the Mishnah, Shasha delineates several functions of lists. The so-called ‘agenda list’ introduces a particular topic at the beginning of a chapter and this idea is elaborated in the balance of the chapter. Some lists are used for comparative purposes while others clearly connect very heterogeneous items under one rubric. Moreover, due to their density and brevity lists help to create a coherent and economical mode for summarizing and conveying certain ideas. Thus, they function not only as a literary device but also as an effective tool for instruction and storage of information. In general, lists tend to appear in clusters of lists.²⁰

In order to provide a broader picture of this phenomenon, I will discuss the heterogeneous appearance of lists and the different approaches to list-making as a literary and hermeneutic tool in several rabbinic works. Two sample texts belong to the genre of Midrash, which can be described as ‘exegetical literature’ in the widest sense of the term. Both works are of rather late origin from the early Muslim or Geonic period, in the 8th to 10th centuries, and so they might belong to the period that Tzvi Langermann designated as the “beginnings of Hebrew scientific literature”. However, these midrashim are of a different nature than those strictly ‘scientific’ texts described in his study since the knowledge is integrated in a wider context.²¹ As we will see later on, these later works exhibit a number of connections to earlier traditions, even post-biblical traditions from before the turn of the era. *Seder Eliyahu Zuta* (The Minor Order of Elijah) is a unique and multifaceted work that skillfully combines different genres, formats and styles of discourse into a dense ethical discourse. The three traditions subsumed under the title *Ma’asseh Torah* (The Work of Torah) are compilations of numerical lists referring to ethical and other issues, ranging from three to seventy items. The last example in this study is taken from the Babylonian Talmud, a corpus of rabbinic (oral) traditions collected, transmitted and reshaped over centuries. Sometime between the 7th and 9th century a ‘final version’ was redacted in Mesopotamia, today’s Iraq and Persia,

18 Shasha 2006. Shasha’s approach is influenced by the thought of Alexander Samely and Abraham Goldberg and builds on earlier studies such as Jaffee 1995, 123–146 and Jaffee 1981. The encyclopaedic character of the Mishnah is emphasized in the title of a recent German translation of the Mishnah (*Die Mischna: Das grundlegende enzyklopädische Regelwerk rabbinischer Tradition*). See Correns 2005.

19 Shasha 2006, 36–51 (for a definition) and 52–79 (for a form-critical description).

20 See Cancik-Kirschbaum and Mahr 2005.

21 See Langermann 2000, here: 169–176.

and became the pinnacle of Jewish religious traditions and learning in the Middle ages.²²

3 Lists and enumerations as hermeneutic-discursive clusters for ethical instruction

In this section I will look at one intriguing literary strategy based on list-making in *Seder Eliyahu Zuta* (hereafter SEZ) in detail. As mentioned before, many rabbinic works feature a basic ‘inventory’ type of list. Such lists can be found also in SEZ 9. In the first list God’s properties as manifested in the world (Torah, the patriarchs, the Land of Israel, etc.) are listed. The second one is instead concerned with providing an index of the cosmos, providing the names of the seven heavens.²³ A more elaborate list in SEZ 3 links these taxonomies with ethical teachings and biblical prooftexts. This passage, a list of micro-level ‘sociological’ observations, differentiates between four types of men according to their motivation for getting married. The rather long section starts as follows:

There are **four** characters regarding the way of the world (*derekh erets*): a man marries for the sake of lewdness, for the sake of money, for the sake of social fame, or he marries for the sake of Heaven. When a man marries for the sake of lewdness, in the end a stubborn and rebellious son will spring from him. When a man marries for the sake of money, in the end he will be [financially] dependent upon others. And when a man marries for the sake of social fame, in the end members of this family will stand up against him to reduce his offspring. And when a man marries for the sake of Heaven he will have children who will deliver Israel in times of trouble.

The passage goes on to explain the aforementioned consequences of each type of marriage through biblical verses by using an introductory pattern (“Whence [do we learn] that one who marries for the sake of ... [this or that happens to him]”) that is repeated in all four cases. Besides the moral message conveyed here, this passage also elaborates on what could be termed a ‘socio-cultural empiricism’ attested in relevant constellations of events taken from Israel’s biblical history, the main point of empirical reference for the texts under discussion here.

In the first chapter of SEZ we can observe a very complex strategy of combining several lists of teachings and enumerations of biblical verses into a dense thematic cluster with several functions. This discussion is concerned with the term *tsedaqah* (צדקה) which can be understood as ‘righteousness’ and/or ‘charity’. This *double-*

²² See Stemberger 2011, 191–223; Fishman 2011 is a study into the emergence of Talmudic cultures around the Mediterranean and in Central Europe.

²³ On the importance for the model of the seven heavens in rabbinic cosmology, see Reed 2010.

entendre or ambiguity is intentionally retained and skillfully exploited in order to define a broad but compelling concept of *tsedaqah*, as we will see in a moment. The whole cluster consists of two sets of teachings in the form of lists that are inextricably interlaced.

The first list includes eight teachings about the greatness of *tsedaqah*. Every teaching has a similar introductory formula “Great is *tsedaqah* because ...” (*gedola tsedaqah she ... / ... גדולה צדקה ש*) followed by different positive consequences for the one observing or practicing it. Thus, the first teaching assumes that *tsedaqah* saves man from the final judgment of *Gehenna* (similar to purgatory). The related prooftexts from Psalms indicate both meanings of the term as the subject of this saying:

Happy is he who considers the poor, the Lord will deliver him in the day of evil (Ps. 41:2). [...] For Happy are those who keep justice, who do charity at all times (Ps. 106:3).

Instead of smoothly continuing this list on the greatness of *tsedaqah*, a second list is interpolated at this point. The latter connects the future salvation from *Gehenna* through *tsedaqah* with the importance of *tsedaqah* for Israel’s biblical role models (e.g. the patriarchs, Moses and Aaron, David and Salomon, and even God himself). The list exhibits a tripartite structure. It opens with the question of why the patriarchs gained merit for the messianic age and the world to come. The answer presents this reward as a direct consequence of their practical *tsedaqah*. This teaching is coined in the formula: “They shall be praised [only] for their *tsedaqah*”. In the following, this formula is repeated for every biblical character in sequence and each teaching is corroborated through a pertinent biblical proof text.²⁴ In all these verses one finds the key-term *tsedaqah* itself or a cognate word of the same root in Hebrew (like *tsedeq*). For exemplification I will present here one of the elements:

Abraham is praised only because of his *tsedaqah*, as it is said, “For, I have chosen him, that he may command his children and his household after him to keep the way of the Lord by doing righteousness/charity (*tsedaqah*) and justice (Gen. 18:19)”. Isaac is praised only because of his *tsedaqah*, as it is said, “And Isaac sowed in that land [and reaped in the same year a hundredfold because the Lord blessed him] (Gen. 26:12)”. And sowing means nothing else than *tsedaqah*, as it is said, “Sow for yourselves righteousness/charity (*tsedaqah*); [reap steadfast love (*hesed*); break up your fallow ground, for it is the time to seek the Lord, that he may come and rain righteousness (*zedeq*) upon you] (Hos. 10:2)”.

After this interjectional list about the praiseworthy conduct of biblical heroes, the text resumes the original list about the positive consequences of *tsedaqah*, mentioned at the outset. In a first step, a brief enumeration (SEZ, p. 168) the seven remaining reasons for its greatness are presented in condensed form. Its greatness

²⁴ For repetition of the list’s theme or caption before every single item see Shasha 2006, 118 and 125.

is linked to its ability to save man from death and the Day of Judgment. *tsedaqah* is equated in its religious value with Torah in every respect. Furthermore, it prolongs man's life, hastens the coming of messianic redemption and leads man over to the throne of God and the world-to-come. All these aspects of *tsedaqah* are taken up and explained in a following, second enumeration (SEZ, p. 168) which comes in the form of didactic questions and answers like “Whence [do we learn] (מניין) that *tsedaqah* prolongs a man's life?”. Similar to the first list, all these teachings are supported by apt biblical verses in which the key-term *tsedaqah* figures prominently.

Having described the structure of those clusters, I would now like to turn to two interrelated aspects of their functions. On the one hand, we can observe an efficient thematic and didactic agglomeration in both cases. This is realized in the lists through two strategies. First, you have a cluster of teachings concerning *tsedaqah* pressed into a formula (like “X is to be praised only because of his *tsedaqah*” or “Great is *tsedaqah* because ...”) that is constantly repeated within the list. Second, the combination and accumulation of several biblical prooftexts for one thematic purpose amplifies the impact of every single verse immensely. Daniel Boyarin aptly describes this effect as follows:

“[...] it is the melding of these different texts into a single quasi-narrative that makes this passage work as midrash and ultimately that gives each of the quoted verses its maximum power.”²⁵

At the same time those verses serve as a forceful and cogent illustration and legitimization of the preceding teachings about *tsedaqah*. Thus, they support the main line of argumentation in this unit. Moreover, the combination of the two lists yields further advantages. While one list demonstrates the usefulness of *tsedaqah* as a virtue, exemplified by its rewarding consequences, the other lends authority to these teachings by presenting the reward of biblical role models as an inviting and undisputable ‘proof’. All these characteristics turn the cluster into a useful mnemotechnical device to be used in rhetorical and didactic contexts.²⁶ On the one hand, a text like this would have functioned as a perfect *vademecum* or *florilegium* for either student or teacher, easily memorized for scholarly discussions or public sermons and instruction. On the other hand, we can discern also a strong semantic interest that informs a defining function for both lists. This interest is induced by the change of meaning (*Bedeutungswandel*) of the key term *tsedaqah* from biblical to rabbinic Hebrew. In the original contexts of the verses the meaning tends to be

²⁵ Boyarin 1990, 31. See also Sacks 2009, 92–94, who shows how PRE, through the usage of former exegetical terminology, creates an accumulative set of diverse biblical passages pertaining to one motif (trope). Those verses mutually reinforce their didactic and theological messages.

²⁶ On the importance of mnemotechnical devices and performative didactic in rabbinic oral culture, which also left its traces on the written text, see Jaffee 2001.

‘righteousness’ or ‘justice’. It is only through the hermeneutic operation of de- and re-contextualization that it can be understood as ‘charity’, its prevalent meaning (as a *terminus technicus*) in rabbinic literature. I suggest that precisely this polyvalence is crucial for the discourse in SEZ. For throughout the text righteousness and a sense of justice are promoted as preconditions for a practice of charity. And the other way round, acts of charity are then the concrete and material expression of a righteous and just mindset.

Thus, in the biblical prooftexts of both lists we find a pair of words that qualifies the focus on a single meaning of *tsedaqah* as charity. Most often one comes across the combination *Mishpat u-Tsedaqah* (משפט וצדקה) with all its different shades of meaning. These verses allow for a sophisticated interplay of different options of understanding that re-integrates the practical *tsedaqah* or charity into an ethic(al) context of righteousness and justice. In the second list regarding the reward of *tsedaqah* the two meanings (righteousness/charity) can be read simultaneously and interchangeably. Furthermore, the combination with similar positive terms (like *shalom*, *emet* or *tsedeq*) in certain verses widens the semantic field of *tsedaqah* explored here. This certainly holds true for prooftexts in which the connection to *tsedaqah* must be produced through a micro-exegesis.

Aaron was praised only because of his *tsedaqah*, as is said, “true instruction (*torat emet*) was in his mouth [and nothing false was found on his lips. He walked with me in peace and uprightness, and turned many from sin] (Mal. 2:6)”. And, [in this verse] true (*emet*) means nothing else than *tsedaqah*, as it is said [in another verse] “Faithfulness/truth (*emet*) springs forth from the earth, and righteousness (*tsedeq*) looks down from heaven (Ps. 85:12)”.

Regarding Aaron the verse from *Maleachi 2:6* first speaks of *emet* (faithfulness/truthfulness). Also in the not-cited second part of the verse we find other virtues (the abstinence from evil [talk] and a life in peace and uprightness) that enrich our *tableau* of ethical conduct and corresponding character traits. Then, Psalm 85:12 is utilized in order to link *emet* to *tsedaqah* via the cognate word *tsedeq* (rather: justice, righteousness) that appears in its second half.

This cluster of two entangled lists would not be considered a list according to Shasha’s definition. The numerical or deictic list caption is lacking in SEZ since we have neither “There are eight aspects of greatness in *tsedaqah*” nor “There are nine who were praised only for their *tsedaqah*”. However, the condensed summary of (almost) all pertaining ‘items’ appears in both lists under discussion. Moreover, as shown above, at the beginning of both lists one finds a formula invoking the greatness or praiseworthiness of *tsedaqah*. As in other rabbinic lists SEZ makes use of a structure in which the whole caption or parts of it were constantly repeated in every individual passage.

In summary, we can delineate the function of this unit as a definition of the lexical and semantic range of the term *tsedaqah*. The whole first chapter introduces and defines the key word and concept of *tsedaqah*, which is of crucial importance for the overall ethical discourse throughout the text of SEZ. This linguistic-textual

approach is inextricably bound to the theological concepts and ethical teachings pertaining to both charity and righteousness. For, as we have seen above, the close correlation between both meanings of *tsedaqah* enables them to function as two different manifestations of a single idea – namely the ethical practice of righteousness. Moreover, this kind of defining and framing by using a *Leitwortstil* that works with trigger words is a central literary strategy throughout SEZ.²⁷ Especially in the first chapter of SEZ, we can observe the tendency to introduce and define almost all key concepts (righteousness and charity / humbleness and asceticism / divine mercy and love) and literary conventions (maxims / lists / first-person narrative) that form the discursive backbone of the text.

Within the scope of this study I cannot discuss all of the implications of the aforementioned observations with regard to their cultural embeddedness. However, it seems likely that one has to consider several factors for this emergent linguistic-lexical orientation in these lists. First, within the Arab culture of the early Islamic centuries we can observe a growing interest in language and grammar that might have stimulated the contemporary endeavors of biblical experts (Masoretes), Karaite commentators and grammarians and also among geonic scholars like Sa'adya Gaon.²⁸ Second, we can trace this kind of philological sensitivity paired with the compilation strategy of key words (*Stichworte*) back already into exegetical lists from Qumran and similar literature.²⁹

Lists or clusters of entries about *tsedaqah* with much the same function also figure prominently in other later midrashim. In the Midrash to Proverbs (Chapter 14: 34) and *Pseudo-Seder Eliyahu Zuta* (PSEZ) 22 we find two enumerations concerned with the greatness of *tsedaqah* and repentance (*teshuvah*). Especially in the late midrashic text *Pirque de-Rabbi Eliezer* (Chapters of R. Eliezer/PRE) we come across different thematic lists that demonstrate the greatness of *tsedaqah* (33), of the ban/*cherem* (38), and of repentance (43). Here, in a way similar to SEZ, repetitive introductions are combined with teachings that are illustrated with biblical verses. PRE exhibits in general a great affinity to the usage of lists and enumerations as part and parcel of its literary and discursive structure.³⁰ Furthermore these

²⁷ I have analysed the literary strategy of *Leitwortstil* or trigger words in greater detail in Lehmmaus 2013, 211–242.

²⁸ For Masoretic approaches, see Delgado 2009; Geonic grammatical and linguistic endeavors against the background of developments in Arabic culture are discussed in Brody 2013, 79–96 and Khan 2000. For the interplay between Jewish Rabbanite and Karaite literary models and their Arabic cognates, see Drory 2000.

²⁹ See Tzoref 2011, who examines the strategies of lists in Qumranic traditions.

³⁰ In PRE we find lists as a structural pattern in various chapters. For instance PRE makes extensive use of the 18 benedictions of the daily *Amidah*-prayer. Elsewhere, the text deploys the seven days of creation, the ten things created in the twilight or the ten descents of the divine presence as a structural device. In another case the topos of Abraham's ten trials is revisited. See Noegel 2003.

lists often provide a rich body of scientific knowledge of different sorts (astrology, cosmology, etc.), as Langermann and Reed have recently noted.³¹

4 A midrash of lists or lists as midrash

An intriguing example of a Midrash that is solely composed from and structured by enumerations and different types of lists is the so-called *Midrash Ma'asseh Torah* (*Midrash of the Torah Work*). This tradition, or maybe one should speak rather of traditions, has a very complex and puzzling history of textual transmission. Today we know of at least three major variants. In addition to *Chuppat Eliyahu* (*The Canopy of Eliyahu*), the tradition is also known by the names *Midrash Sheloshah we-'Arba'ah* (*Midrash Three and Four*) as well as *Pirque Rabbenu Ha-Qaddosh* (*Chapters of our Holy Master*). While containing and appropriating a lot of older material, these texts display their own literary strategies and probably also a hidden agenda of compilation. Further studies should seek to compare such agendas or strategies of compilation also in neighboring, and at times even immediate, textual cultures in the Graeco-Roman, Christian Syriac, Arabic and other literatures.³² The works can most likely be dated to the 9th century. Although these traditions are very interesting and feature a lot of intertextual parallels with other rabbinic texts no modern scholarly edition, commentary or analysis has been produced so far.³³

4.1 Structural aspects

Most relevant for our discussion is the unique character of these texts within Jewish literature since all of these texts consist solely of lists or enumerations. This overall structure is in all three traditions very similar, while the exact sequence and con-

31 See Reed 2014, 31: "In *Pirque de Rabbi Eliezer*, moreover, ethical, ritual, and 'scientific' materials are all presented in terms of a *Listenwissenschaft* that raises intriguing possibilities of some connection to pedagogical practice. Through numbered lists, the cycles and principles of Jewish piety are depicted as part of the divine order that permeates, enlivens, and supports the entire created world". See also Langermann 2002, 169–176.

32 A possible starting point for such a comparison could be to investigate the similarities between the Talmudim, later midrashic traditions and the evolving genre of *Adab* (*literature, belles lettres, ethics, etiquette*) in the Arab culture. See Allen 2000, 133–192.

33 In this study I used *Chuppat Eliyahu* according to Meir Horowitz, *Kevod Chuppa*, Frankfurt, 1888; *Midrash Sheloshah we-'Arba'ah* according to J. D. Eisenstein, *Ozar Midrashim. Bibliotheca Midraschica* (New York, 1915; reprinted Jerusalem, 1969); for *Pirque Rabbenu ha-Qaddosh* Eleazar Grünhut, *Sefer ha-Likkutim* 3 (1900, reprinted Jerusalem, 1967). For a short introduction and a survey of all editions and translations, see Stemberger 2011, 380–381 and Zunz, *Gottesdienstliche Vorträge*, 297 f.

tent of these texts varies significantly. The texts also differ in their range and comprehensiveness. The major part of all texts contains lists with three and four items. While the *Midrash Sheloshah we-'Arba'ah* begins immediately with this kind of material, the two other traditions (*Chuppat Eliyahu* and *Pirqe Rabbenu ha-Qaddosh*) have a kind of prologue with 'seven-item' lists³⁴ that display a strong connection to the entities named in the title of each composition.³⁵ A similar divergence can be observed for the range of the different texts, which feature a constantly growing number of items in the lists, but differ with regard to the highest number in a given text.³⁶

However, in all texts the typical single list with a deictic or numerical caption followed by items constitutes the smallest literary unit. In these traditions, the *deixis* is in most cases placed after a numerical list caption ("X things are ... and these are they" / *we-'ilu hen / hem*). In some instances the number of items mentioned in the caption does not correspond to the actual content of the list due to the introduction of additional entries, generally introduced by the phrase "some even say ...". Sometimes it is not clear from the actual list, if this addition is meant as an expansion or as an alternative opinion:

Three things [behaviors] will bring a man to wealth: calculation on prayer, faithful business with other men, humbleness towards his household. Some even say: one who has knowledge. As it is said: "by knowledge the rooms are filled with all precious and pleasant riches (Prov. 24:4)". (*Chuppat Eliyahu*, p. 165)

However, in many lists this basic structure is elaborated through a repetition of every single item followed by an explanation or by a pertinent biblical prooftext. In some cases, especially in the *Midrash Sheloshah we-'Arba'ah*, we also find a more compartmentalized structure. In such cases, not all items are listed as a set

34 However, in some constellations of the material one can find texts that start with seven items. Thus, according to the first list's caption ("Seven canopies will the Holy One make for the righteous in the future") this tradition is called Seven Canopies (*Sheva Chuppot*) or *Chuppat Eliyahu* (Eliyahu's Canopy). However, the title *Chuppat Eliyahu Rabbah* (The Long/Great Canopy of Eliyahu) is mentioned for those passages beginning with three items ("Through three things the first man was created").

35 This is most obvious in the tradition called "Chapters of our Holy Master" (*Pirqe Rabbenu ha-Qaddosh*) that commences as follows: "Seven things did our Holy Master command his sons/children". However, then, the scheme of three-and-four is already visible in the specification: "three about fear of sin (*Yir'at Chet*) and four about the way of the world (*Derekh Erets*)".

36 In *Chuppat Eliyahu* the number of list items grows up to 24 (God's gifts to the priesthood in Israel) in the last one. The *Midrash Three and Four* even adds a list concerning the 70 names of Torah. However, the text omits some lists and has after 13 items only 18, 24 and 70. The most condensed range of those three traditions has the *Midrash Pirqe Rabbenu ha-Qaddosh* proceeding from three to twelve items. The last list in this text is about twelve important parts of the human body, whereas in *Midrash Sheloshah we-'Arba'ah* the 'twelve-item' list discusses twelve pillars on which the world rests.

immediately after the caption; instead, some lists present each item, one after another, followed by a biblical proof-text and/or explanation respectively. Sometimes two or more lists are contiguous or exhibit a close textual and/or thematic proximity. Often such lists show a high degree of contrast. In *Midrash Sheloshah we-'Arba'ah*, for instance, one finds the list caption “Six whose advice was beneficial” (p. 539 f., no. 53), while the next list (p. 540, no. 54) contrasts this with “six whose advice was not beneficial” by listing other biblical figures and providing the corresponding proof-texts.³⁷

While this list demonstrates a rather simple form of textual and topical nexus, other lists can be described as more complexly intertwined. At the beginning of *Chuppat Eliyahu* the text introduces a list (no. 9) about seven pieces of advice that *Rabbenu ha-Qaddosh* (i.e. Rav Yehuda ha-Nassi) gave to his children.³⁸ All his commands are warnings about bad manners. The two subsequent lists are closely related since they continue the general topic of wrong behavior. While one (no. 10) elaborates on seven bad things that can happen to a haughty man, the other one (no. 11) presents seven behaviors punished by exclusion from future salvation in the world-to-come. These three rather negative lists are then contrasted with five lists containing a positive message and encouragement. It starts with a direct link to the preceding list about the world-to-come and presents (no. 12) seven items that will be revealed by the messiah exclusively to Israel. The next list (no. 13) is concerned with a hierarchy of the righteous in paradise (*gan eden*), constructed solely through pertinent biblical quotations. Afterwards another list (no. 14) remembers how God made a covenant with Israel on seven occasions with seven great biblical figures. Then seven great men in Israel are mentioned who are not under the rule of the Evil Inclination (i.e. human weakness). The sequence closes (no. 15) with mentioning seven righteous men born by Ruth, the Moabite woman, who are the “pillars of the world”. In some rare cases the list starts either with a biblical verse or a narrative introduction evoking a biblical setting. The following enumerations or lists then serve as a sort of exposition of this initial situation.

4.2 Thematical aspects

As in other rabbinic traditions that extend from Late Antiquity up to the Middle Ages, the establishment of a well-structured table of contents for these three midrashic texts is a rather difficult matter for reasons explained in the following. Thus,

³⁷ Another example can be found in *Midrash Sheloshah we-'Arba'ah*, p. 538, list no. 22. Within one list the text refers to “three things given by God on condition”, namely the Temple, the Land of Israel and the kingship of the Davidic family, and “three things given without condition”, namely Torah, Israel’s proximity to God, and the priesthood.

³⁸ See *Babylonian Talmud, Pessachim* 112b where four different things are listed as his commandments.

we have to attempt such an analysis in a rather different way, without imposing the scheme of other well-organized tracts, compendia or encyclopedias known from Greek or Latin sources. The lists (re)present their entries within each single thematic unit in a structured manner in line with the pattern(s) surveyed above. Still, the whole document appears to the reader as a quite messy collection of different subjects. The only common thread that can be identified is the principle of numerical groupings throughout the overall structure in the text. This section will not provide a detailed discussion of every single list and its scientific content from a comparative angle. In fact, I would like to confine myself to a modest survey of several topical features that are significant throughout the texts under discussion.

4.3 Lists with ethical messages and socio-cultural insights

One can say that roughly half of all the lists convey an ethical message of some sort. Obviously, there is a great deal of similarity between the ethical discourse conveyed through lists and other literary forms of ethical instruction (like the *maxime*). This partial identity is obvious in *Chuppat Eliyahu* (p. 169, no. 101) where no difference whatsoever can be observed between the list format and similar teachings in other types of texts (*SEZ/Derekh Erets Rabbah* and *Zuta/Kallah Rabbati*)³⁹:

Three things said the sages of blessed memory: always should a man eat and drink less than it is available to him, he should dress himself only with what is in his possession, and he shall honor his wife and all members of his house unduly; for, as much as he depends on his master [in Heaven] they are dependent on him.

Another type of ethical list conveys ideas about more practical everyday conduct and etiquette relating to behavior in business, toilet manners or treatment of fellow human beings. Modesty in one's sexual behavior is also an important topic in this area:

Three things lead a man to poverty: to have sex during the day naked, to stand naked in front of a candle, to have intercourse before the eyes of a creature. (*Chuppat Eliyahu*, p. 167, no. 63)⁴⁰

Some lists directly refer to the learned scholars and delineate their distinct ways of life with regard to different spheres of activity like the study house, the house of prayer, the market place, the bathhouse. Some also give a definition *ex negativo*:

³⁹ For another list with many parallels in other ethical midrashim like *SEZ*, *DEZ*, *Kallah Rabbati*, etc., see *Pirque Rabbenu ha-Qaddosh*, p. 514, chapter eleven, no. 3. Schofer 2007, 313–335, provides a thorough survey of rabbinic ethical traditions.

⁴⁰ See the different items in *Pirque Rabbenu ha-Qaddosh*, p. 505, no. 5 (who despises the washing of hands; who urinates in front of his bed; whose wife curses him in his face).

Four things (behaviors) are disgraceful for the students of the sages: who wanders behind a woman, even if it is his own wife; who jests in the market place; who stays away from the study house; who makes friend with the *am ha-aretz* [the unlearned].⁴¹

This list is augmented with several appeals to cling to the sages and to spend as much time as possible with them in order to benefit from their wisdom and participate, even indirectly in a way of life that leads to salvation. Similar pieces of advice regarding scholarly or general etiquette are also a common feature in the so-called rabbinic Wisdom traditions or ethical literature, often described as ‘rabbinic manuals’.⁴² Those lists with an ethical focus can be described as a form of sociological empiricism in a wider sense of the term, since their content seems to be based on exact observations of society, human relationships and behavioral patterns.⁴³

4.4 Ritual

In some lists we find a remarkable tendency to provide an etiological explanation for certain parts of Jewish religious practice or rituals. One list (*Midrash Sheloshah we-’Arba’ah*, p. 539, no. 43) draws a strong connection between four divine salvations of Israel in Egypt, the four cups of wine on the night of Passover, and four cups of mercy that God will serve Israel in the future. In another passage one finds a corroboration of the Jewish dietary rules to avoid meat cooked together with milk, presented as an enumeration of pertinent biblical verses (*ibid.*, p. 537, no. 11). Elsewhere (*ibid.*, p. 541, no. 65), the text deals with the eighteen benedictions of the central Jewish prayer (the *Amidah*) in everyday liturgy. The number of benedictions is analogized with the eighteen shifts in the Temple, so as to prove that prayer is a perfect substitute for worship. Other opinions equate the benediction with the eighteen vertebrae of the spine, with eighteen songs in the book of Psalms and eighteen parts of the “Song at the Sea” that are strongly associated with prayer.

4.5 Scientific knowledge (astrology/geography/biology/physics/history)

In some lists we also find the types of information that would have been categorized as pre-scientific or pseudo-scientific in earlier scholarship. However, in ac-

⁴¹ See the same list caption in *Chuppat Eliyahu*, p. 175, no. 10. The items in the list are different, though. A characterization of the student can be found *ibid.*, p. 178, list of 15.

⁴² See Sperber 1990. A thorough comparison of these traditions is beyond the scope of this study. However, I intend to publish soon another paper that focuses in greater detail on the ethical teachings conveyed in lists and maxims.

⁴³ General observations and classifications can be found in *Chuppat Eliyahu*, p. 1, no. 6 (seven kinds of theft); *ibid.*, no. 7 (seven types of poor people); p. 170, no. 114 (3 good measures: charity,

cordance with the new approach to ancient science(s) discussed above, one can discern certain intriguing features of both empiricism and systematization.

One list in *Chuppat Eliyahu* (p. 173, no. 42) demonstrates practical interest in astrology and astronomy and their connection to meteorological phenomena.⁴⁴ The list caption reads: “On four paths wanders the sun during a year”. After naming the path for each quarterly period (inhabited land, desert, mountains, sea), the relevant months are recapitulated. Afterwards there follows a detailed teaching authorized by several sages about the specific climatic conditions during specific periods. Another list related to cosmology records the names of the seven heavens (*Pirque Rabbenu ha-Qaddosh*, p. 512, no. 13). Other passages present rather condensed sets of entries that derive from various scientific areas, or, to put it correctly, from different fields of (empirical) observation of the world. Thus, *Chuppat Eliyahu* (p. 162, no. 2) lists “seven types of gold in the world”, or better, in the biblical universe, since all are attested in verses from Scripture. The subsequent list (*ibid.*, no. 3) engages in a kind of ‘biology’, offering seven names for species of locust, also taken from the Bible. And another one (*ibid.*, no. 5) knows seven biblical designation for food. Another cluster of three lists (*ibid.*, 173, no. 5–8) characterizes animals (horse, insects, mad dog) and plants (reed).⁴⁵ Elsewhere (*ibid.* 168, no. 81) we find examples for a sort of ‘sacred geography’ that provides knowledge about the entrances to *Gehenna*. Others (*ibid.*, p. 172, no. 33/p. 174, no. 22) collect different names of certain mountains (Hermon and Sinai) or teach the distances between different regions (*ibid.*, p. 174, no. 20).

Some other lists are occupied with dream interpretation, a highly valued discipline in the ancient Near East. These lists interpret the appearance of a certain thing or person as symbolic. Each item, thus, indicates specific future developments for the dreamer. Another list explains to what fate the appearance of a certain sage or book refers.⁴⁶ In *Midrash Sheloshah ve-’Arba’ah* (p. 536, no. 8), we even find a kind of historiography. The list caption reads: “Three great wars will be waged by the sons of Ishmael in the land in the end of days:” one war will be

lending, financial support); *ibid.*, no. 117 (3 good aspects of evil inclination, jealousy and mercy); *ibid.*, no. 120 (3 hate each other: women, unlearned and little children).

⁴⁴ See von Stuckrad 2000, 432–511, who summarizes rabbinic knowledge of and opinions on astrology far too unwarily since it relies heavily on early scholarship. For some recent cautious studies see Charlesworth 1977, Kalmin 2012, Rubenstein 2007 and Leicht 2011.

⁴⁵ See a cluster of lists with a similar focus (names of snakes, lions and clouds) in *Chuppat Eliyahu*, p. 175, no. 14–17. A different biological lists (*Pirque Rabbenu ha-Qaddosh*, p. 509, no. 83) comprises three things whose shell/skin will remain in a man’s bowels.

⁴⁶ *Chuppat Eliyahu*, p. 168, no. 84: “who sees four things in his dream will have peace”. For the second type, see *ibid.*, p. 169, no. 86 (three pious rabbis seen in a dream symbolize three characters – seekers of wisdom, piety and fear of divine punishment). The same three virtues are in *ibid.*, no. 102 linked to three biblical books (Proverbs, Psalms and Job). See also *Pirque Rabbenu ha-Qaddosh*, p. 506, no. 19–22. We can find certain parallels with lists in the so-called Talmudic dream-book in *Babylonian Talmud, Berakhot* 57b. On the latter, see Alexander 1995.

fought in Arabia, one at the (Mediterranean) sea, and one in the big city of Rome. Although the text pretends to present knowledge about future events, it seems quite likely that historical experience with the military campaigns during the Muslim expansion is encoded here.⁴⁷

5 Medicine and healing in *Ma'asseh Torah*

The most notable body of scientific knowledge in these traditions pertains to medicine. Although no medical handbook or book of recipes can be identified here, many lists impart very exact information on certain diseases and display some acquaintance with anatomy and psychology. In one list (*Midrash Sheloshah we-'Arba'ah*, p. 536, no. 3) about phenomena (aging, illness, medicine) that came into the world only at a certain stage, we encounter the origin of aging and medicine. This passage plays on the first appearance of these particular expressions in the Bible. Thus, it connects the difficulties of old age, leading up to Abraham's death, and the emergence of pain and illness as a reason for the death of Jacob. The Judean King Hezekijah, who was healed by the prophet Elisha, is linked to the introduction of medicine and healing. This is striking since Hezekijah is in other rabbinic traditions strongly associated with a 'Book of Remedies' which he concealed from the public.

5.1 Anatomy

One basic field of medicinal theory is anatomy. The three traditions under discussion provide only very limited information about the human body. However, the greater part of it seems reliable and exhibits substantial accuracy in its observation of bodily functions.

One list in *Midrash Sheloshah we-'Arba'ah* (p. 539, no. 45) is rather metaphorical in its description of five types of foreskin in the world, of which four belong to men (ears, lips, heart, flesh, i.e. penis) and one to trees (the fruit of trees in the first three years): This passage draws heavily on the biblical usage of the word 'foreskin' as attested in the quoted prooftexts. More substantial are the statements on the essential matters from which the first man (**ADaM**) was created. *Chuppat Eliyahu* (p. 164, no. 1) knows three indispensable substances: "Dust (**Avaq**), blood (**Dam**) and gall/bile (**Marah**). And all are weighted as [if they are] one, since without all three of them man cannot exist. When there is something lacking in his

⁴⁷ Another 'historiographic' list (*ibid.*, p. 541, no. 62) discusses "ten kings who rule(d) over the whole world".

design or if there is a surplus in his design, he will suffer.”⁴⁸ The connection between the three substances and the creation of man is made through the three initial letters of each matter that form the word ‘adam’ – man. However, it is telling that our midrash augments this basic wordplay with some sort of medical interpretation. Two other lists (*ibid.*, p. 170, no. 108–109) deal with bodily fluids, their circulation and their connection to certain ailments. The first reads: “When blood increases, ulcer/boils (*sahin*) increase; when bile increases, jaundice (*tseva/yeraqon*) increases; when semen increases, leprosy (*tzara’at*) increases.” The second continues: “Three fountains in man never cease: blood, bile and semen (*dam, marah, shikhvat zera’*). And some say: when urine (*mei raglaw*) increases, jaundice (*yeraqon*) also increases.”

At the very end of *Pirque Rabbenu ha-Qaddosh* (p. 514, no.1) one finds an interesting list of the major parts of the human body and some of their functions:

Twelve things are in man: the mouth forms (lit. cuts) [the words/voice], and the tongue completes/finishes; the windpipe brings forth sound (the voice); the gullet swallows; the heart understands; the kidneys give advice; the belly (or: stomach) absorbs every kind of food; the liver boils (heats), and the gall sprinkles [it]; the spleen pounds (or: rubs), the stomach grinds; the maw sleeps when the stomach is awake, (and the stomach sleeps when the maw is awake. If both of them sleep at the same time, one dies).

One can discern three differentiated areas in this list. First, mouth, tongue and windpipe belong to the head and the face. They constitute the system of human speech. The gullet belongs also to this area but also serves as a connector to the two remaining spheres. Second, the heart and the liver form the emotional and cognitive center of man. Third, the inner organs (liver, gall, spleen, maw, stomach, belly) constitute the digestive system and their interdependence is exemplified here. In other rabbinic texts one can unearth some very similar lists, mostly without a numerical element. The parallel in the Talmud indicates a rather long history of transmission of this passage or parts of it.⁴⁹

⁴⁸ In the *Babylonian Talmud*, tractate *Sotah* 5a, we read: “R. Yohanan said: The word for man [adam] indicates dust, blood and gall”.

⁴⁹ This passage is in Hebrew and is introduced in the Talmud as an authoritative teaching (*baraita*) of sages who were contemporaries to the teachers of the *Mishnah* (*Tanna'im*). Ber 61a–b: “Our Rabbis taught: Man has two kidneys, one of which prompts him to good, the other to evil; and it is natural to suppose that the good one is on his right side and the bad one on his left, as it is written, a wise man’s understanding is at his right hand, but a fool’s understanding is at his left. Our Rabbis taught: The kidneys prompt, the heart discerns, the tongue shapes [the words], the mouth articulates, the gullet takes in and lets out all kinds of food, the wind-pipe produces the voice, the lungs absorb all kinds of liquids, the liver is the seat of anger, the gall lets a drop fall into it and allays it, the milt produces laughter, the large intestine grinds [the food], the maw brings sleep and the nose awakens. If the awakener sleeps or the sleeper rouses, a man pines away. A Tanna taught: If both induce sleep or both awaken, a man dies forthwith”. Differences in the description of the functions largely arise from the usage of different vocabulary. It is noteworthy that in our list above the lung is missing from the list and the nose replaces the maw.

We can conclude that this small portion of anatomical knowledge is down-to-earth and based on empirical observation rather than on theoretical speculation and systemization. Moreover, there is no hint whatsoever pointing to an overall physiognomic consciousness and interpretation of bodily appearance for astrological or medical purposes like in some traditions from Qumran.⁵⁰

5.2 Diet and regimen

In another field of knowledge in which ethics, etiquette and medicine intersect, we can identify list of rules regarding a healthy way of life. Sometimes such teachings are hard to discern since they provide this specific information randomly or in combination with other mundane knowledge. However, some registers display a decisive orientation towards regimen:

Seven things cause abdominal problems/piles: eating of leafs from reed; and leafs of the grape tree, and leafs of the palate of beast; drinking of sediments from wine; eating the spine of a fish, or a salted fish that was not cooked as required; one who wipes of himself with the same pipe or stone which has been already used by his fellow. And some say even: one who hangs himself in the privy – that means: someone who does not sit on the loo while doing one's bathroom needs. (*Chuppat Eliyahu*, p. 164, list no. 19)

Several other lists that often appear in contiguity seem also to be preoccupied with a combination of diet and regimen as preventive measures. In *Chuppat Eliyahu* (p. 166) such a cluster of five rather brief teachings can be identified in the first third of the text. The first list (no. 34) mentions three things that increase one's power as well as one's excrements: "black bread, fresh-made beer, and herb". The next list (no. 35) commences: "three things do not enter the body but the body enjoys". And mentions then bathing, rubbing with oil, and intercourse.⁵¹ The following list (no. 36) is of more general nature since it refers to three things that broaden one's understanding: "a handsome woman, a suited habitation, and proper garments/vessels".⁵² The last list (no. 37) returns to the focus of regimen and records three things that "bring back the soul/the life: grilled meat, wine, and bathing". After about twelve lists concerned with other topics, one comes across three pieces of advice ("the sages said") concerning nutritional regimen, to which a discussion of toilet manners and bathing have been added (*ibid.*, no. 52). A second

⁵⁰ Popović 2008, 2–16.

⁵¹ In *Midrash Sheloshah we-'Arba'ah* (p. 538, no. 25) one finds the opposite list: "Three things do enter/pertain to the body directly, but the body does not enjoy [them]: voice, height, and hair". The *Babylonian Talmud*, *Berakhot* 57b, has on third position "regular motion", maybe as a modest designation for sex.

⁵² See the similar teaching in *Babylonian Talmud*, *Berakhot* 57b.

list introduced by “the sages said” instructs how certain types of food influence the character of the children conceived right after their consumption (ibid., no. 66).

In all three traditions one can find a type of list whose list caption follows the pattern “who does these things his blood is in/on his head.” Although these words properly describe the literally maladies of high blood pressure, this formula has another meaning. It admonishes that if one does something dangerous, one is fully responsible for the possible harmful consequences. However, all of those lists are overtly concerned with regimen. One shorter example (*Chuppat Eliyahu*, p. 169, no. 81) lists “eating of vegetables from their truss; drinking two cups; wiping oneself [at the privy] with earthenware [which can easily break and cut the anus]”.⁵³

5.3 Diseases

Some other lists in these three texts are overtly concerned with diseases, especially with their actual origins. Once again, one can detect an editorial technique involving the clustering of related entries. Thus, in *Chuppat Eliyahu* (p. 167, no. 40), in close proximity to the cluster about regimen, we find “three things will make one’s eyes grow dim: looking at a rainbow, into the face of a dead person, and upon a priest on the priest’s stage.” In the following, one list (ibid., no. 44) is concerned with the “depletion of semen” through the consumption of barley bread, bad wine and plants/herbs of the field. Subsequently, three possible lethal behaviors (ibid., no. 45) are recorded: “sleeping while standing, bloodletting while standing and drinking of asparagus (alcoholic beverage with cabbage) while standing”.⁵⁴ This cluster ends with a medical statement in a list about “three who will not see the punishment of *Gehenna* [since their suffering in life is sufficient]”. This teaching includes “one who suffers from intestinal disease” and demonstrates how grave these ailments and their agonies were considered. An increased interest in diseases of the digestive system can be discerned also elsewhere (ibid., p. 170, no. 9), when R. Josse calls for different preventive measures to avoid these kinds of afflictions.⁵⁵

5.4 Functional aspects

Having analyzed literary structures and thematic emphases of the lists in these *Ma’asse Torah* traditions, I would like to undertake a preliminary examination of

⁵³ *Midrash Shelosha ve-’Arba’a*, p. 539, nos. 48 and 49 record two times five different dangerous behaviors. The first list, which has a parallel in the *Babylonian Talmud Niddah* 17a, revolves around eating of peeled garlic, onion and egg; the drinking of water, which has been uncovered over night, and sleeping at the graveyard.

⁵⁴ Shortly before this one finds a similar list (ibid., p. 166, no. 31): “Three things exhaust a man’s body: eating while standing, drinking while standing, and having intercourse standing”. See *Babylonian Talmud, Gittin* 70a, and in the following.

⁵⁵ Another disease is mentioned in *Chuppat Eliyahu*, p. 5, no. 16 and in *Pirque Rabbenu ha-Qaddosh*, p. 506, no. 6: “Three things will cause someone to have gout (*podagra*): a shoe too narrow, a bed

possible functions of several lists. This step is always tainted with the danger of speculation since the direct context (*Sitz im Leben*) and the field of application is lost. Only the literary context is given, while no self-reflexive discussion about the actual practice of list-making can be recognized in the textual record. Moreover, we are necessarily forced to concentrate on specific ways of representing knowledge and what one can learn about the underlying cognitive or epistemological conventions from the lists.

In numerous lists one can identify a particularly high degree of interest in biblical history. Most of the lists are composed as dense summaries of biblical events, arranged according to different functional criteria. First, these synopses can recapitulate the salient points of a closed biblical episode and offer thereby a dense and easily remembered summary. This is obvious for example in *Midrash Sheloshah we-'Arba'ah* (p. 540, no. 60) where ten divine miracles at the Red Sea or in Egypt (*Chuppat Eliyahu*, p. 176, no. 3) are brought together. Second, other lists organized on the basis of a thematic focus collect related episodes within a specific narrative frame. This certainly holds true for the famous tradition about the ten trials of Abraham and of Israel (*Chuppat Eliyahu*, p. 176, no. 2 and 4), for the ten miracles in the Temple (*ibid.*, 177, no. 5), and for the ten descents of the Divine presence (*ibid.*, no. 8). Third, the most sophisticated form of list links distinct diachronic events, figures or constellations that are scattered across all of the texts of the Hebrew Bible. In this case, one can observe the hermeneutic power of lists that build analogies and subsume heterogeneous items under a well-considered category. One example (*Midrash Sheloshah we-'Arba'ah*, p. 540/19, no. 58) brings together all nine instances when Israel was brought together for a census in biblical times. It ends with the messianic prospect of a tenth reckoning, whereby ten symbolizes completeness. Another list (*ibid.*, p. 538, no. 59) combines all biblical figures who were designated "Godfearers". *Chuppat Eliyahu* (p. 162, no. 4) mentions four Israelite kings who were idolaters in Samaria.

Other lists, rather short ones, provide a kind of biblical encyclopedia, concordance or thesaurus. As in a lexicon or index, these passages juxtapose different or alternative designations for particular biblical persons or items. Thereby, the authors or compilers suppose an identity between different subjects that has been highly controversial from the beginning of biblical exegesis up to modern-day scholarship. For example, one list brings together several designations for Mount Sinai, while others (*Pirque Rabbenu ha-Qaddosh*, p. 513, no. 2; *Chuppat Eliyahu*, p. 176, no. 3) teach eight different names for the messiah. Elsewhere (*Midrash Shelosha we-'Arba'a*, p. 540, no. 57) seven female prophets are recorded whose prophetic status is explained through biblical quotations and teachings of the rabbis.

to short and too much intercourse". For other teachings regarding gout, see *Babylonian Talmud, Sota* 10b and *Sanhedrin* 48b. See also Geller 2004, 11.

Some other lists also seem to serve as a more elaborated tool for indexing than those presented in the previous paragraph. Their selection concentrates primarily on linguistic or lexical aspects. Thus, the certain number of instances in which a specific word or phrase is used are assembled into a list. One of these lists (*ibid.*, p. 540–41, no. 61) falls into the category of a ‘summary of biblical events’, while exhibiting also a fair degree of lexical interest. Here we find ten items that serve in the Bible as a symbol for the covenant between God and Israel. Every single item is supported by a biblical verse featuring the word ‘covenant’ (*brit*/ ברית). Another index (*ibid.*, p. 539, no. 42) records all of the items that are called the “work of His hands.”⁵⁶

While these are already examples with a dominant lexical focus, two lists in *Pirqe Rabbenu ha-Qaddosh* (p. 541, no. 14 and no. 1) exhibit a clear grammatical approach that can be easily associated with the scholarly circles engaged in scriptural editing and commentaries (Masoretes). I would like to refer to it as ‘scribal’ or even ‘Masoretic’ indexing since it is concerned with the meaning of punctuation or other grammatical details (like the permutation of gender). Moreover, in many thematic lists we can observe also a generally increased linguistic sensitivity and a sophisticated approach to key terms or trigger words. Thus, the items on the list are not connected by a thematic focus alone but also by a lexical or linguistic feature that is common to them all. In one striking example (*Midrash Shelosha we’Arba’a*, p. 536, no. 9) a list records explicitly all instances in which God “pointed with his finger” in order to explain something incomprehensible to Moses. However, the biblical verses do not mention God’s pointing with his fingers. Rather, this action is assumed implicitly by the use of the deictic formula “and this” (*we-ze*), which can be found in all three prooftexts.⁵⁷

5.5 Conclusion to a midrash of lists or lists as midrash

From the foregoing analysis of these works one can learn about the flexible integration of the same or similar lists in different contexts. However, the numerical element in the list caption as well as the items or their explanation may differ substantially. Furthermore several lists demonstrate that the list is an ‘open format’, which could be expanded with supplemental information (such as explanations, exposition of verses, or rabbinic discussion) by compilers or editors.⁵⁸

All three texts of the *Ma’asse Torah* traditions comprise an abundance of information compiled in simple or compound lists and ranging across different areas of knowledge. While all of these traditions share certain material and exhibit a partic-

⁵⁶ For another list of this type, see *ibid.*, p. 538, no. 36.

⁵⁷ See Boyarin 1990b.

⁵⁸ See also the contribution by Ragetti in this volume.

ular ethical approach⁵⁹, one can detect some topical and stylistic preferences in each particular text. Besides an ethical orientation, *Midrash Sheloshah we-'Arba'ah* exhibits a penchant for summarizing biblical events and (lexicographically) indexing of biblical topics (e.g. “in four instances Scripture says X”). In *Pirke Rabbenu ha-Qaddosh*, despite some few biological and medical entries, most of the lists are concerned with ethical teachings, often including a kind of etiquette for the student and introduced by an attribution to a named sage. This tendency would tally self-referentially with its title, since the work was allegedly authored by Rabbi Yehuda ha-Nassi, the author/compiler of the Mishnah himself. The tradition of *Chuppat Eliyahu* can be described as an interesting mixture of both of the aforementioned approaches. However, this text is considerably enriched with all kinds of scientific lists and clusters of medical knowledge.

In these traditions two aspects of the epistemology of lists interlock. On the one hand, the awareness of biblical verses and the linguistic sensitivity applied in the lexicographical and summarizing lists demonstrate the entanglement between a ‘science of lists’ and a ‘science of (written) language’. On the other hand, the lists function like the Wisdom traditions “as devices for systematising observations about nature, geography and man, and as pedagogical and mnemonic tools for conveying this information to students and posterity”.⁶⁰ Their pedagogical and hermeneutic embeddedness in rabbinic culture can be described as follows: “Rather than a rejection of ‘science,’ what we see is more of a totalizing impulse to encompass all varieties of knowledge, while maintaining the epistemological monopoly of the Torah”.⁶¹

6 Bavli Gittin’s ‘Book of Remedies’ and Talmudic medicine in lists and narratives

Our last example in this study will address the occurrences and functions of lists and enumerations in one of the largest repositories of Jewish rabbinic culture – the Babylonian Talmud (BT) or *Bavli*. As mentioned above, this work consists of thousands of dicta, narratives, parables, sayings, proverbs, scholarly discussions and many other genres. It is not surprising that in the *Bavli* one can also find an abundance of lists and enumerations scattered throughout this vast textual corpus. A quick survey shows that we can encounter simple lists as well as compound lists

⁵⁹ The best example for the ethical approach might be the appearance of a list about “three things a man should meditate upon everyday” in the same form in all three texts. This list/maxime can also be found in SEZ, chapter 3, and emerges most likely from a similar list in *Pirke Avot* and *Avot de-Rabbi Nathan*.

⁶⁰ Towner 1973, 4.

⁶¹ Reed 2014, 22.

and other types of enumerations. Still, until today, there is a telling lack of scholarly engagement regarding this literary and hermeneutic feature in the Bavli. Since a comprehensive study of lists in the Babylonian Talmud is beyond the scope of this paper, I would like to discuss in the following some specific lists concerned with medical knowledge. These passages can be found in the first part of the seventh chapter of the tractate *Gittin* (“Divorces”) in the order *Nashim* (“Women”). The tract deals with general but also very specific questions related to Jewish marriage law, especially with the execution of a writ of divorce.

The seventh chapter of the treatise *Gittin* spans more than seven folio pages (67b–70b) and has often been recognized as a repository for medical information. This observation applies in particular to a passage that has been called the ‘Book of Remedies’.⁶² One can describe it as a rather homogeneous textual cluster dealing exclusively with recipes for over forty ailments. It commences suddenly on f. 68b and extends to f. 70a. Most of the recipes follow a stable pattern. The introduction starts with the designation of the ailment (For X/le-/... ָ) followed by the direction “he should take Y”. The recipe is completed with descriptions of plants and other *materia medica* (animal parts, stones, food, etc.) and instructions of how to prepare and apply these remedies. A remarkable part of these recipes includes not only the application of drugs but also the use of magical techniques, rituals and incantations. Earlier scholarship has pointed to the uniqueness of this passage with respect to its use of language, phraseology and content in comparison to other Talmudic passages. However, in order to evaluate the particular contents of the *Gittin* ‘Book of Remedies’ and their way of being presented it is also necessary to pay attention to their overall literary contexts. Therefore, I first present a brief survey of its overall structure. This will allow us to assess the significance and possible functions of this list of recipes within its immediate and wider discursive context.

6.1 The Mishnah about *Qordiaqos*

The chapter starts with a Mishnah (m*Gittin* 7:1) stating that the request of one who is “seized by *Qordiaqos*” and wants a writ of divorce (*get*/גט) or wants to annul an already written document of divorce for his wife, is invalid. This statement is contrasted with the valid case of a mute person whose wholeheartedness is tested through other questions that confirm his/her intention.

6.2 The subsequent clarification

After this rather short snippet of the Halakhah of writing a divorce document in the Mishnah, the explanatory discussion in the Babylonian Talmud starts with a

⁶² See the title of Freeman 1998–1999 (“The *Gittin* ‘Book of Remedies’”).

question: “What is a *qordiaqos* (קורדייקוס)?” The term itself is somewhat odd. Although it seems to be of Greek origin, one cannot find any correspondence in Greek medical terminology.⁶³ The new proposal offered by Jesse John Rainbow in a recent article seems to add to the confusion rather than resolving it. He relies fully on the interpretation of *qordiaqos* in the Babylonian Talmud as a demon without paying attention to its usage in the Mishnah and the Palestinian Talmud where such an explanation is missing.⁶⁴ In the Palestinian Talmud (Yerushalmi), this term is explained as “a state of delirium or a temporary mental disorientation” (see Palestinian Talmud Gittin 7, 48c–d = Terumoeth 1:1, 40b). Although the symptoms include confusion and cognitive incompetence (and therefore also legal incompetence), the *qordiaqos* is clearly distinguished from chronic mental illness or the state of an imbecile (*shoteh*/שוטה).⁶⁵

The aforementioned discussion of *qordiaqos* in the Palestinian Talmud renders the opening question in Gittin 67b all the more striking. Since it indicates that the Talmudic sages have little or no idea about the meaning of this term in the Mishnah. However, when interpreted as a rhetorical question, it provides an opportunity to introduce a new explanation of the subject that focuses on the origin of the disease. The following explanation is twofold. First, Shmuel’s presumption in Aramaic is quoted: “One who is bitten by new wine from the vat” (*de-nakhteiha hamra hadata de-meatzarta*/דמנכתיה חמרא חדתא דמעצרתא). The anonymous compiler of the passage remains unsatisfied and asks why this has not been stated clearly in the Hebrew explanation already in the Mishnah. Second, another answer explains the term *qordiaqos* as the name of the (evil) spirit or demon who causes this state of delirium. This information is quite valuable since it allows for the production of an appropriate remedy, an amulet in this case, probably with the name of the demon or a charm written on it.⁶⁶ However, the Talmud in Gittin 67b also reproduces a cure, already mentioned in the Palestinian Talmud, that rounds out the first discussion of this quotation from the Mishnah: “What is the remedy for it? Red meat broiled on the coals, and wine highly diluted.”

Thus we can identify two approaches that have been seen as complementary by the redactors of this passage. The first, a magico-medical approach, presumes that a demon is behind the disease and offers a pertinent remedy (viz. an amulet).

⁶³ See Rosner 1995, 60–64, who surveys all earlier scholarly attempts to make sense of this wording. See also Kottek 1996, 2924–2926.

⁶⁴ Rainbow 2008, supposes a rather complicated origin for the term *Kordiakos* by linking it to one singular translation (καρδίω) for the Hebrew verb לבבתני (Song 4:9) derived from the root לבב (i.e. heart), used in the Septuagint’s description of Solomon’s enchantment by his foreign women and their gods.

⁶⁵ For a medical perspective on the described symptoms, see Hankoff 1972.

⁶⁶ For the use of amulets in rabbinic and Jewish tradition, see Naveh and Shaked 1998 and Bohak 2008, 374 (on the *Kordiakos*).

The second approach seems to be more empirical in relying on a special diet as the most effective cure for what maybe an alcohol-induced form of confusion.⁶⁷

6.3 Other diseases and treatments

The adjacent section then seems to take up the above mentioned therapy (red meat/wine) as its associative linking point, for Abbaye's statement about a sunstroke or a fever (אשמש) presents it as a remedy against the most severe form of over-exposure to the sun, while milder types can be healed through drinking water or bloodletting. It seems that Abbaye's teaching also challenges the aforementioned explanations and therapies for *qordiaqos*. Maybe because of the similar therapies Abbaye assumed that *qordiaqos* is something like sunstroke or fever. The discussion continues in a contrastive manner by presenting remedies for the chills. Not only the source of the ailment (snow/cold) but also the cure seems to be the exact opposite of the former disease (sunstroke), since in this case one shall eat "fat meat and undiluted wine". This therapy is illustrated in a narrative about how the house of the Exilarch mocked a restrictive but pious rabbi (R. Amram) by making him lie down in the snow. In turn, he plays a trick on his mockers and receives from them the right food for a therapy against the chills. This section concludes with some alternative therapies for chills whose common denominator is heating the body through hot bathes or hard work, taught by R. Joseph and Rav Sheshet.

6.4 Narrative: Rav Sheshet at the court of the exilarch

The illustrative story about R. Amram functions as a trigger for the text to bring forth another story about Rav Sheshet, the last mentioned sage, and his tricks against his adversaries at the court of the Exilarch. Thus, the setting and set-up between the characters (trickster rabbi vs. mocking Jewish gentry) is very similar. While his adversaries try to shame and to slander Rav Sheshet before the Babylonian Exilarch, the sage manages to anticipate their moves and make his opponents look stupid. The connection to the opening of the Mishnah is provided by the mentioning of meat and wine, although not used in a context of recipes against ailments. At first glance, this entertaining story about the rabbi's refusal to dine with the Exilarch seems to deal solely with questions of dietary rules (*Kashrut*) and Halakhic purity. For the house of the Exilarch (and Patriarch) is often presented in rabbinic source as more assimilated and rather sloppy when it comes to the prac-

⁶⁷ The diet applied here is evocative of several recipes for a day after breakfast. Such popular recipes circulate as common knowledge within different cultures until today. They recommend the consumption of high-fat dishes including meat, in combination with a small dose of the pathogenic substance (i.e. alcohol) at great dilution.

tice of Jewish religious laws. Information about the constant tension between the sages and the elite members of the Exilarch's house provides a plausible background for the story. Still, this narrative includes not only discussions of issues related to Halakhic validity of certain animal products and about slaughtering. In fact, it is also a witty lesson about (animal) anatomy, diagnostics, and diseases (e.g. how to identify a boil on the inner organs). This last feature also functions as a strong link harking back to the preceding discussions related to healing.

6.5 Narrative: King Solomon and the king of demons *Ashmedai*

After the story about Rav Sheshet one finds suddenly a biblical verse quoted from *Qoheleth* 2:8 which seems to be King Solomon's personal statement about his achievements. While all other terms are explained, the interpretation of the Hebrew terms *shiddah* and *shiddot* (שִׁדְדָה וְשִׁדְדוֹת) in Ecclesiastes 2:8 as demons seems to be controversial and requires further corroboration. In order to provide a clarification, the Talmud provides a long and elaborated narrative about King Solomon and the prince or king of demons – *Ashmedai*.⁶⁸ Solomon tricks him, holds him captive and forces him to assist in the building of the First Temple in Jerusalem. Freeman supposes that Solomon's reputation as a healer who drives out demons is the main motivation for presenting this story before the 'book of remedies'.⁶⁹ Freeman notes similarities between this Solomonic tradition and (early) Christian approaches to healing. Gilad Sasson assumes that the proximity between two magico-medical healer characters (Solomon/Jesus) prompted the Talmudic sages to include the *Ashmedai*-story instead of other, more suitable healing-narratives about Solomon.⁷⁰ Another possible link could be drawn between a biblical 'Book of Remedies' – thought to be authored by Solomon and concealed by King Hezekiah (according to Bavli Berakhot 10b) – and the 'Book of Remedies' in Gittin 68b.⁷¹ However, these connections are only indirect and weak, since the corpus of recipes

⁶⁸ The Hebrew terms are thus read as *sheda u-shedot* which is close to the Akkadian term *šēdu*, the demon or even King of demons *Ashmedai* (אֲשֶׁמַדַּי), in Greek known as *Asmodaios* (Ἀσμοδαίος), might be a figure influenced by the Persian-Zoroastrian demon of wrath *aēšma* or *aēšma-daēva*. While in the apocryphal tradition of Tobit he is depicted as the major evil antagonist, the Testament of Solomon and rabbinic traditions present him as a rather playful supernatural being. He is also mentioned in the Quran and Arabic legends. See Asmussen 1983.

⁶⁹ Freeman 1998–1999. For the image of King Solomon in traditions like the *Wisdom of Solomon*, *Antiquities of the Jews*, *Liber Antiquitatum Biblicarum*, *Sefer ha-Razim*, Magical Papyri from Egypt and fragments from Qumran as a magician and magic healer, see Torijano 2002, esp. 1–7 and 41–87.

⁷⁰ See Sasson 2007, esp. 51 ff. See also Geller 1974. For a combination of different sciences (medicine/astrology) with a sophisticated demonology cf. Popović 2007, 235–239.

⁷¹ The traditions about the Solomonic authorship of the lost 'Book of Remedies' are analyzed by Halperin 1982.

includes only some few magico-medical recipes that are based on incantations. Moreover, no demons are specified as the cause for a certain illness. In the first place, a straightforward link does exist between Solomon's abilities as a medical summoner and the interpretation of *qordiaqos* in the Bavli as a disease induced by demons. Thus, the elaborate narrative makes recourse to the interpretation of *qordiaqos* in the very first discussion in this Talmudic chapter.

This connection is reinforced through the collection of traditions about King Solomon following the story about the building of the Temple. Here, Solomon's interest in the nature of demons ends in a disaster. The king of demons took Solomon's ring or seal with the divine name engraved on it and hurled it far away from Jerusalem. After this deposition, Ashmedai took on Solomon's physical appearance and ruled in his place, while Solomon wandered around begging and proclaiming certain verses from Qoheleth, especially the verse with authorial reference: "I, Qoheleth, was king over Israel in Jerusalem" (Eccl. 1:12).⁷² Therefore, he was considered insane. The truth is revealed only thanks to the apprehension of the rabbis in the Great Court (Sanhedrin) who launched an examination of the ruling king and his strange behavior. The demon is unmasked and bound by Solomon who returns to his former position.⁷³

I assume that this second part of the *Ashmedai*-legend has been included into the Talmud not only because it belonged to this cycle of narratives, but also because the description of Solomon's deposition attests to the dangers involved in dealing with demons. Additionally, Solomon's temporary despair and his alleged insanity serve as another link to the state of mental disorientation called *qordiaqos* that is, according to the Babylonian Talmud, caused by a demon.

Moreover, the narrative itself is a container for more concrete forms of information, since its overall topic, the construction of Solomon's temple, throughout history caused amazement and provoked questions about the technical arts that it involved. In passing, the text also describes techniques for trapping demons and bending them to one's will. *Ashmedai's* actions on his way to Jerusalem are explained and reveal insights into the nature of the world (e.g. the practice of divination) and about the scope of demonic knowledge (divine decrees and the fate of men). This content reflects also the general characterization of Solomon as "wiser than all other men" (1. Kings 5:9–14) – his wisdom is described as including also (scientific) knowledge about the natural order of the world. This implicit attribu-

⁷² In rabbinic literature there was some uneasiness with some of the rather fatalistic or hedonistic teaching in Ecclesiastes. Thus, as in Gittin 68b, many of those sayings (e.g. Eccl. 1:3) are interpreted as being motivated by Solomon's desperate situation and temporary insanity after his deposition. See *Va-Yiqra Rabbah* 28,1. For a discussion of the motif of madness in the bible against its ANE background, see Henze 1999. I thank Cale Johnson for drawing my attention to this book.

⁷³ The legends about King Solomon and Ashmedai can be found not only in the Talmud and the Testament of Solomon but also in various other traditions. For a discussion of these tales see Yassif 2009, 87–89, Karminka 1922, and Ten-Ami 2008.

tion or conflation of Solomon's (medical) knowledge and the other content of the chapter, especially the 'Book of Remedies', could be modeled against the foil of antecedents from post-biblical and rabbinic times. In apocryphal texts and rabbinic traditions we often see a tendency to judaize some forms of (scientific) knowledge such as astronomy, astrology or medicine by retrojecting their invention to a great figure of old. Thus, medical knowledge is ascribed to Noah and other biblical ancestors in the *Book of Tobit* and *Jubilees*, while Abraham and Enoch are associated with astronomical and astrological approaches in a unique body of texts.⁷⁴

6.6 List of remedies

Right after the story about Solomon's deposition and final return to power the passage about remedies starts without any further structural framing. One cannot find here any sort of introduction or *deixis* (e.g. '*This is the Book of Remedies*'). As described above, this rather long passage covers about one third of the whole chapter. While the cluster has a rather sudden start one cannot with certainty determine where it ends, for at the top of folio 70a we can observe a smooth transition to a discussion of remedies, recipes and diseases in which almost all of the teachings are attributed to named rabbinic sages.

6.7 The epilogue of the 'Book of Remedies'

This part includes about a dozen teachings by several rabbis about diseases and their remedies, also in the form of recipes. However, compared with the preceding passage the style of presentation differs. The main structural element in the introduction (for X take Y) in the foregoing passage is missing here. Each recipe is introduced with an attribution to named sages, like in the first one: "Shmuel said ...". The first two teachings deal with fatal injuries caused by a weapon or the sting of a wasp. The recipes presented here are not intended to cure but to prolong one's life and to enable a person to make his or her last arrangements. The next passage discusses a strong type of fever and its cure. However, the following section introduces a shift from diseases and remedies to diet, regimen and preventive measures. The first three teachings are concerned with nutrition, whereas a longer

⁷⁴ See Alexander 2002, Popović 2007, 215–239. For a critical reassessment of studies in Enochic 'scientific' innovation, see Reed 2014, 14–15. See also Reed 2004. This kind of back-reference is a common feature in rabbinic texts where biblical or rabbinic characters are quoted as the major authority behind a particular tradition. However, the retrojection of traditions and knowledge can be found also in other ancient cultures as in the *Hippocratic Corpus*. This includes far-reaching questions concerning anonymity, authorship and pseudo-authorship, which I cannot discuss here in greater detail.

unit deals in detail with the pathogenic effect (epilepsy, spasms, skin diseases) of certain sexual and hygienic habits (e.g. intercourse after bloodletting; using the privy in specific positions) and offers recipes for some of the ailments.

This discussion is augmented through a list that includes seven distinct sub-lists or enumerations. This passage includes teachings or sayings about health, regimen and diet structured by numerical list captions. This feature is very similar to the one already analyzed above in the case of the three *Ma'asseh Torah* traditions, especially with *Chuppat Eliyahu*. Thus, it is hardly surprising that some of the teachings listed here in *Gittin 70a* have some parallels with lists in the above-mentioned traditions and other midrashim.⁷⁵

In the Talmud, the first list starts with three general items that “weaken a man’s strength”, namely anxiety, traveling and sin. All of these are underpinned with quoted biblical prooftexts. The list does not continue sequentially since one finds two lists with three items, one with five, one with six and two lists with eight items. The general structure might be described also as a framework or envelope-structure. All of the lists follow to some degree the overall topic of weakening the body, introduced in the first list. The captions and warning propositions can be summarized as follows:

1. Three things enfeeble a man’s body (standing during a meal and during intercourse)
2. Five are nearer death than to life (immediate rising after eating and drinking, bloodletting, waking or intercourse)
3. Six things will cause immediate death (bloodletting after an exhausting journey followed by a bath, excessive drinking, a nap on the floor or intercourse)
4. Eight things, harmful in large quantities, but beneficial in small quantities (travelling, the ‘way of the world’ (i.e. intercourse), wealth, work, wine, sleep, hot baths, and blood-letting)
5. Eight things cause a diminution of seed (salt, hunger, scalds, weeping, sleeping on the ground, lotus, cucumbers out of season, and bloodletting below)

As one can see, the discussion in this closing section of the chapter revolves around the question of retaining one’s bodily strength, virility and fertility. This topic is applied as an excellent link to the preceding passages about how the conditions (after bloodletting, after use of the privy, etc.) and positions (standing, sitting, etc.) of intercourse affect the health of future children and of both partners. As such, the lists make the impression of being primarily geared to men. The style and content is very different from the preceding passages about remedies. Actually, the typical structure (For X take Y) is lacking and also no cures are mentioned. Rather, the text gives advice about how to secure health by avoidance of certain

⁷⁵ On diet and regimen in the Babylonian Talmud and in Greco-Roman and ancient Babylonian medical discourses, see Geller 2004, 17–19.

types of conduct. The functioning of the circulatory system and the therapy of bloodletting, considered as rather dangerous, are crucial to all of the lists, except for the first one. These lists do not appear as an artificial addendum, but were incorporated into the extensive discussion about medicine as an apt conclusion with numerous cross-references to the foregoing sections.

6.8 Conclusion to Bavli Gittin's 'Book of Remedies'

Previous scholarship on this textual unit in *Gittin* has highlighted differences in style, language and theme that make it unique within the Talmudic corpus. For example it follows a rather logical structure, listing the recipes according to their area of application from head to foot (*cephalocaudal*). This is a common feature of ancient Babylonian medical texts as well as of Greek and Roman (*a capite ad calcem*) medicine. However, despite its remarkable and maybe unique features, a depiction of this textual block as an alien element seems fairly overstated. The list of remedies was not haphazardly added to an otherwise coherent Talmudic discussion of religious nature. One can clearly observe several deliberate, editorial appropriations at work here. Although the majority of the recipes appear anonymously without any attribution, we can find names of certain sages interspersed in various passages. In most cases the names introduce a complementary or illustrative teaching or a question that seeks clarification about the use of certain substances. Only in a few cases is a named sage presented as the transmitter of a recipe. The inclusion of these names serves clearly to integrate the passage in the wider cultural framework of Talmudic discourse. Moreover, it connects this unit with its immediate context where other medical teachings with a specific attribution to particular sages are presented.

There are two slightly different lines of argument for the possible background of this unique and peculiar passage of *Gittin* within the Talmud. David Freeman argues that the 'Book of Remedies' deals primarily with very common diseases and offers rather simple recipes for treatment. He supposes that the so-called superstitious elements stem from the Persian-Zoroastrian environment of the Bavli. The recipes are for him "particularly dissimilar from Greek or Roman professional medical texts in style, content, thematics, and therapeutics".⁷⁶ Based on this observation he offers another source: orally transmitted folk-medicine that produced no texts and cannot be used as point of comparison. Freeman points to the Roman genre (Cato/Varro/Pliny) of domestic medical handbooks for laymen in order to instruct them in self-treatment, while admitting that most of the content (i.e. the *materia medica*) comes rather from a Babylonian background.⁷⁷ This insight is

⁷⁶ Ibid., 159.

⁷⁷ Ibid., 160–163.

based on Mark Geller's studies arguing that many medical issues in the Bavli "should be rather evaluated as the latest and rather sparse remnant of a complex system of medicine known for at least two millennia in Mesopotamia."⁷⁸ Thus, several disease names and designations of *materia medica* can also be explained against the background of ancient Mesopotamian, Akkadian medicine and its technical vocabulary.⁷⁹ Another point that indicates a connection to a Babylonian cultural background is its structure. The so-called 'Book of Remedies' in *Gittin* can be described as a kind of list, although it lacks the typical feature of a list caption. The (re)presentation of medical knowledge in the form of a list is a common feature of ancient Mesopotamian medical literature.⁸⁰ However, as already seen, lists and a certain type of *Listenwissenschaft* also play an important role in various other rabbinic texts. This holds true for the whole chapter of *Gittin*, which exhibits a rather ordered structure, starting with different recipes in the first part and concluding with a list on regimen.

This chapter provides a good example of intertwining epistemologies in the Talmud. On the one hand, several sub-units show a high degree of order. Thus, the first discussions of the Mishnah with their medical teachings, the substantial body of the chapter in the 'Book of Remedies' as well as the concluding passage that turns from diseases to diet and regimen all follow a rather logical sequence. On the other hand, one comes across various narratives about certain sages and about King Solomon's use of demonic power in the building of the Temple in Jerusalem. These interspersed stories demonstrate the rather bewildering representation of knowledge in the type of associative discourse that characterizes the Babylonian Talmud in many parts. However, both types of discourse and epistemology are neatly entangled with each other through an extremely skillful dovetailing between the single units of the chapter, as shown above. While at times the linkage is hard to identify, all of the passages either implicitly or explicitly harkens back to the opening passage from the Mishnah about *qordiaqos*. The discussion of this disease immediately brings along with it the topic of recipes and remedies to which all of the other sections then make reference. Through this process, the sage-stories are 'medicalized' (charged with medical overtones), whereas the so-called alien knowledge of the recipes in the 'Book of Remedies' is rabbinized as far as possible by integrating them into a Talmudic type of discourse. As a whole, the seventh chapter functions as a dense cluster of knowledge about healing and the natural order of the world. The characterization of this passage as alternatively a medical handbook, a small medical encyclopedia and a *vademecum* or a *Hausapotheke* is

⁷⁸ Geller 2000, 13–32, here: 29.

⁷⁹ For a translation into German with a comprehensive commentary see Veltri 1997, 239–249. A partial translation into English and numerous explanations about a possible background in Mesopotamian medical traditions can be found in Geller 2000 and Geller 2004, esp. 20–29.

⁸⁰ Geller 2010a, esp. 11–42 and 56–117. See also Geller 2010b.

of crucial importance for our discussion here. This chosen form of representation for a substantial body of medical knowledge, augmented by illustrating narratives, highlights an encyclopedic approach that is for the most part rather hidden and implicit in the Talmud.

7 Conclusion

This preliminary study of lists as epistemic devices in rabbinic literature has yielded some interesting, sometimes astonishing results. These insights are rather tentative and have to be carefully re-examined and compared to other instances of lists in the vast corpus of rabbinic literature. However, some essential observations can be summarized as follows.

As demonstrated in the different sections, lists serve in different rabbinic texts as powerful literary devices for varying purposes. First of all, they function as sophisticated tools for structuring particular content within a larger textual framework. The rabbinic list is dynamic and flexible in character as shown in the *Ma'aseh Torah* traditions. In all three of these traditions and also in other texts (like the Babylonian Talmud) we find many parallels or at least lists with the same list caption whose specific elaboration of the list's items is often different. Moreover, several lists include information presented in the form of list or different formats in other rabbinic traditions (like the Talmud). This indicates the list's openness for changes and its ability to be attuned to various discourses and contexts through extension, shortening, or alteration. The list as it appears in the texts under discussion here seems to be an apt tool for the impartation of a broad range of knowledge. First and foremost, one can observe a proclivity for ethical topics that resemble each other to a certain degree and are based on empirical knowledge and observation of human behavior that would be described today as 'sociological'. Also many other areas of knowledge are touched upon, including medicine and regimen, dream interpretation, astrology and astronomy, biology, geography, and even historiography.

While one should be aware that we cannot talk about this material as scientific literature *per se*, some parallels can be identified for certain scientific or encyclopaedic strategies in several ancient traditions. The rabbinic ethical traditions exhibit some parallels to monastic ethical writings, hagiographic traditions as well as to lists of virtues and catalogues of vices in Hellenistic literature and early Jewish-Christian literature.⁸¹ Possible backgrounds for Talmudic or rabbinic medical discourse in the Greco-Roman and ancient Mesopotamian healing traditions have been already mentioned above. The sort of scientific and historical information

⁸¹ See Charles 2000, 1252–1257.

based on and illustrated by examples stemming from Scripture, as given in the *Ma'asseh Torah traditions*, may share some features with some Christian and Muslim works. In the Greek *Hypomnestikon* (or *Joseph's Bible Notes*) one finds a biblical index made up of over 160 lists about the numbers of High Priests, the false and female prophets, the number of generations between certain biblical figures and similar things.⁸² Also the *Onomasticon* of Eusebius, archbishop of Caesarea (early 4th century), provides a list of biblical place names that oscillates between geography and lexicography.

In sum, we see that lists in the rabbinic tradition play an important role as mnemo-technical devices in the didactic instruction and impartation of a broad panoply of knowledge. This feature seems to be similar to the main function of ancient Mesopotamian lists whose primary interest was most likely not scientific but rather pedagogical in nature. Another shared aspect of ANE and rabbinic epistemic practice in terms of *Listenwissenschaft* concerns the dimension of language. A certain (scientific) approach to the surrounding world, the material and social environment, results from a complex combination of aesthetic and cognitive processes that find expression in the material and written representation of knowledge. Thus, the foregoing analysis provides us with some insights into at least three distinct models of rabbinic list-making. The list as such appears to be a hybrid format existing at the intersection of linguistic-textual, literary and cognitive-hermeneutic dimensions.

This junction of literature and science is evident in many lists from our sample texts, which display a growing interest in linguistic aspects, while providing different sorts of scientific knowledge. In *Seder Eliyahu* and the *Ma'asseh Torah traditions* we find several techniques for the specification and definition of particular words, concepts and ideas through application in context. Here, the texts make extensive use of keywords and intertwine at times linguistic interest with ethical teaching. This combination of linguistic interest and practical lexicography appears to be an heir of ANE cultural practices as well as a precursor (or contemporary) to the later more systematic engagement in linguistic inquiry conducted by Geonic and medieval scholars. This account of rabbinic list making might serve as a missing link connecting earlier Jewish scientific discourse with medieval lexicographic-encyclopaedic endeavors in lexical lists, books and dictionaries of biblical and Talmudic terminologies and concepts.⁸³ The list of remedies in the bewildering

⁸² It is intriguing that the *Hypomnestikon* features similar lists about seven female prophets like in the Babylonian Talmud and in *Midrash Shelosha ve-'Arba'a* (p. 540, no. 57), and about the false prophets like in a Qumranic fragments. See Cohen 2000. For the text, see Grant and Menzies 1996.

⁸³ According to Cancik-Kirschbaum 2010, 22–29, we can find in the Mesopotamian culture of list-making a literary dimension of cognitive hermeneutics (rhetorical figures and metaphoric language) as well as other more linguistic techniques for acquiring knowledge (binary propositions, conceptual specification, linguistic-semantic comparison, etc.). For the encyclopaedic and linguistic activity in early medieval Jewish culture and its Arabic-Muslim environment, see Olszowy-Schlanger 2012,

literary context of the Talmudic tractate *Gittin* demonstrates another facet of a specific mix of epistemologies within the rabbinic discourse. On the one hand we have small and coherent literary forms like lists, Talmudic discussions or narratives. While the lists function as thematically geared and condensed tools for the transmission of knowledge, the narratives, in a way similar to mythical poems and stories in the ANE, serve to explicate and illustrate these and related issues. This tallies with certain literary traits in ancient Greek scientific writing (or *writing science*) as explored only very recently for medical and mathematical texts. Studies of these texts not only explain “the ways in which form may act not only as an arbitrary or conventional choice of expression, but can also allow us to see more clearly the ways in which ancient authors used writing strategies as part of their thinking and research”.⁸⁴

In explaining some ANE lists Markus Hilgert used the rhizomatic concept of knowledge, proposed by Deleuze, as a suitable metaphor for its non-linear and proliferating character.⁸⁵ This delineation also seems to be appropriate to Talmudic discourse with its rampant and associative structure of volatile insinuations and thematic clusters. This hermeneutic approach should not be belittled as fanciful and pre- or non-scientific. Rather, one has to evaluate it as a complex rabbinic hermeneutic practice embedded in a full-fledged epistemology. Thus, the specific representation of knowledge in lists and other structural patterns, while being part of a rhizomatic and encyclopaedic fabric becomes part of the cognitive process and the acquisition of knowledge itself.

These ideas about rabbinic epistemology in the preceding paragraph can be substantiated by the arguments of Annette Reed. In her study she advocates an approach to Jewish traditions not as situated at the margins of general ancient sciences, but rather as developing a unique type of Jewish ancient science with its own epistemology. Thus, denying “the Jewishness of Jewish engagement with ancient sciences is to skew our understanding of the richness of reflection on the stars, cosmos, and human body within the history of Judaism”.⁸⁶ With regard to our sample texts one can discern a discrete interest in broad areas of (scientific) knowledge that transcends the logical and empirical aspect of halakhic-religious discourse as structured knowledge about the world. Following Reed’s suggestions, one notices the tight, and maybe inextricable, intertwining of ‘scientific’ and ‘religious’ knowledge most often embedded in the epistemological framework of the

Asstren 2004, esp. 130–141; for a detailed discussion of the Arabic endeavours, see Haywood 1960 and Endress 2006.

⁸⁴ Doody *et al.* 2012, here: 234. The literary dimensions of Greek scientific texts are studied also in Asper 2013. For the mythical exemplification in Mesopotamian culture, see Cancik-Kirschbaum 2010, 32–33.

⁸⁵ Hilgert 2009, 298–305.

⁸⁶ Reed 2014, 13.

Bible/Torah.⁸⁷ This rabbinic epistemology feeds on other ancient cultures and their sciences (i.e. Greco-Roman, ancient Near Eastern, Persian, Byzantine), while appropriating and developing its own terminology and categories that may follow, however, some inner-Jewish trajectories in Wisdom literature, works from Second Temple Judaism, and mystical traditions (*Ma'asseh Be-Reshit / Hekhalot*). Although the findings of the preceding study appear to be helpful in delineating the rabbinic epistemology of *Listenwissenschaft* and its encyclopaedic features, one has to be very careful regarding general assertions. Encyclopaedic dimensions of rabbinic texts are not obvious. They can be traced only through careful philological and cultural analysis of specific textual representations of knowledge as given in certain rabbinic traditions. However, further investigations into the literary strategies and the epistemological essentials of this particular knowledge enterprise will help to define the characteristic of science in a rabbinic garb.

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**B. Licensing Empiricism: Replication and Authority
in Mesopotamian Technical Literature**

Ulrike Steinert

'Tested' Remedies in Mesopotamian Medical Texts

A Label for Efficacy Based on Empirical Observation?

Abstract: This contribution investigates the phraseology of descriptions of efficacy (efficacy phrases) in Mesopotamian medical texts, concentrating on the qualification *latku* 'tested, tried, proven', which implies that knowledge of effective drugs and remedies had been acquired through practical experience and repeated trials. The occurrence of *latku*-qualifications in different types or formats of medical manuscripts and in recipes that are duplicated in one or more historical periods will be analyzed, so as to raise questions regarding the role that 'tested' remedies played in the formation and transmission of Mesopotamian medical compendia. I also look at information about drug testing from outside the medical corpus, as for instance in several letters from Old Babylonian Mari, the role of efficacy labels from a cross-cultural perspective and the use of efficacy labels in connection with colophons. The paper concludes with a discussion of the relatively high frequency with which extract tablets make use of 'tested' remedies and the categorical role of the label in designating certain sections of medical compendia.

1 Introduction

While the empirical aspects of Mesopotamian sciences, especially in the field of astronomy and divination, have received considerable attention lately,¹ this topic has not played an important role in the study of Mesopotamian medicine.² Babylonian divination (especially terrestrial and celestial) has traditionally been regarded as essentially observational, but several studies have highlighted the fact that both empirical and theoretical (or speculative) elements were at work in the formation and compilation process of omen collections.³ Similarly, Francesca Rochberg (1991) has demonstrated that there was no 'evolution' from observation to theory in Babylonian astronomy, but that from early on, astronomical texts integrated observational and computational methods with the application of schemata. With regard to

1 Graßhoff 2011; Robson 2011; Rochberg-Halton 1991; Rochberg 2004; 2011.

2 See Geller 2010, 16–17.

3 Star 1983, 12; Koch-Westenholz 1995, 18–19; Rochberg-Halton 1991, 116–120; Rochberg 2004, 247–265. See further Rochberg's contribution in this volume for the pervasiveness of analogical reasoning as a heuristic tool in the Mesopotamian sciences (including divination, medicine and 'magic').

Mesopotamian medicine, scholars have emphasized the importance of careful observation, long practical experience and the pragmatism that lay at the centre of the Mesopotamian healers' endeavors (Robson 2008, 474), while Barbara Böck (2009, 393–395) has pointed out that some entries in the diagnostic omen compendium SA.GIG may not stem from actual examinations of patients, but rather were the creative product of theoretical knowledge, deduction and association. Mark Geller (2010) has argued that Babylonian medicine had both a theoretical and a practical basis, i.e. concepts of the body, physiology, illness and healing pervade the medical literature, which itself focuses on practical aspects, i.e. on the diagnosis, prognosis and treatment of illness. He connects Babylonian medicine as a science with the fundamental methods of observation and experience, and defines the latter in terms very close to the idea of 'experiment' as found for instance in the use of Latin *experimentum* in the medical texts of ancient and medieval times.⁴ Medical knowledge and experience in Mesopotamia, Geller argues, evolved over a long time and was bound up with a textual tradition (i.e. recorded observations made in the past). Practical experience was gradually accumulated, as for example in the field of drug usage, and led to an ever increasing knowledge of effective treatments.

Building on this discussion, this contribution investigates the phraseology of descriptions of efficacy (efficacy phrases) in Mesopotamian medical texts, concentrating on the qualification *latku* 'tested, tried, proven', which implies that knowledge of effective drugs and remedies had been acquired through practical experience and repeated trials and formed an important part of medical knowledge. In order to address the notion of 'proof' and 'test' in Mesopotamian medicine, the present study will first discuss the meaning and usage of the words derived from the root *LTK* in texts outside the medical corpus itself, and only subsequently occurrences that refer to healing and other areas of scientific inquiry. In addition to cuneiform texts I will draw on comparative phenomena in ancient and medieval medical literature as discussed in current scholarly analyses. The comparative material will be used as clues for understanding *latku* and the notion of efficacy in the medical texts, which in themselves typically lack the practical and explanatory context necessary for a precise interpretation of the term's meaning.

Turning to the medical texts themselves, the occurrence of *latku*-qualifications in different types or formats of medical manuscripts and in recipes that are duplicated in one or more historical periods will be analyzed, so as to raise questions regarding the functions that 'tested' remedies had and the role they played in the formation and transmission of Mesopotamian medical compendia as well as the amount of importance that ancient healers might have attached to practical experience.

⁴ Geller 2010, 15–18.

2 The word *latāku* and the empirical approach in Mesopotamian science and technology

Let us start with a lexicographical overview of the words derived from the root *LTK* in Akkadian.⁵ Beside the verb *latāku* ‘to test, to check, to verify’ and the verbal adjective *latku*, a number of nouns occur as well: *litku* ‘test; measure’, *litiktu* ‘(true) measure’ and *maltak(t)u* ‘test’.⁶ Apart from its use in connection with medical prescriptions, where it means ‘to try out, to test’, *latāku* generally means ‘to examine (with the senses), to check’.⁷ The notion of checking is evident in contexts where the quality of agricultural and craft products is examined, especially finished products emerging from chemical refining processes in metallurgy and glassmaking.⁸ That this kind of quality control for craft products was connected to technical procedures and sense perceptions can be seen from a Middle Babylonian chemical recipe for the production of *dušū*-colored stone (probably a type of glass), in which the quality or state of the chemical mixture is examined during the production process by testing its reaction when exposed to fire.⁹ The existence of an empirical

5 It is worth noting that *latku* is always written syllabically in the Akkadian texts, which runs counter to the tendency for logographic writings in technical literature, including medical texts. From a few, mostly fragmentary lexical sources we know of a Sumerian equivalent for *latāku*, notably the verb *kab/kāb-dug₄/di*, which is also attested in Sumerian texts from the 3rd and early 2nd millennium BCE (see Attinger 1993, 572–576; Civil 1994, 153–163; Wilcke 1988, 48 fn. 147; Wilcke 1992, 316–317). Lexical equations are found for *kāb(KA×A) = litiktum* and *kāb-dug₄/di = latākum* (Kagal D Section 8: 8’, 10’; MSL 13, 247, discussed in Civil 1994, 153–154); *KA×IM* and *SAG×A* are probably erroneous spellings for *kāb* equated with *latāku* (Civil 1994, 154; Attinger 1993, 575–576). In Sumerian administrative documents, *kāb-dug₄* is connected with the verification of measurements, the measuring of (mostly agricultural) commodities and with the inspection of fields, but the expression can also refer to the ‘examination’ of persons’ deeds in court (see Civil 1994; Wilcke 1999, 304). The meanings of *kāb-dug₄/di* range between ‘to verify; to control; to examine; to test’ and ‘to estimate’ (Attinger 1993, 575–576). Thus, *kāb-dug₄* is found in concrete contexts of establishing ‘facts’ with the help of standards (metrological, mathematical, cultural). It seems that the specific application of verification or trial procedures to medical contexts developed in Akkadian medical texts, hence the lack of a logographic writing for *latku* in them.

6 CAD L, 111–112, 216–217, CAD M/1, 171–172; AHW 540a, 556–557, 596.

7 This usage of *latāku*, which is similar to *kab-dug₄*, is common in letters and administrative documents: for example, the physical state of oxen is examined in Dossin 1933, 99, l. 10, BIN 7, 42, l. 8 (see Waters 1970, 76 no. 56) and in BE 15, 199, ll. 42–43 (Middle Babylonian, see Torczyner 1913, 53); the progress of construction work is checked in ARMT 13, 16, l. 8 and 19, l. 15. In other instances, *latāku* refers to testing the intentions, actions, and thoughts of other people (e.g. putting their trustworthiness to the test) and is also used to indicate attempted actions.

8 See Oppenheim 1970, § 14 (‘tested *būšu*-glass’); cf. the literary text *The Letter of Gilgamesh* (STT 40, l. 25, s. Gurney 1957, 130; Kraus 1980, 111), which speaks of iron (*parzillu*) that is *zakā damqu nasqu latku bēru aqru* ‘pure, high-quality, choice, tested, selected, precious’.

9 Oppenheim 1966, 30, ll. 5–6: *ina pēnti nebūti talattak šumma išāta lā ittanpaḥ ul takil šumma išāta ittanpaḥ takil* ‘You test (the mixture of minerals, milk, wine) on glowing charcoal, and if the

approach in the sense of applying a technical method of ‘checking’ or ‘testing’ something (a verification procedure based on specific standards) expressed with the word *latāku* is also apparent from other references, in which the verb refers to the verification of measurements and mathematical or astronomical calculations.¹⁰ One reason why the word *maltaktu* is also used as a term for the water clock may be connected to the importance of this instrument for checking or verifying calculations or estimations, especially of astronomical events, for the purpose of divination.¹¹ This is exemplified by a passage in the so-called ‘Diviner’s Manual’, where the water clock is mentioned as a practical device to ‘check’ (*latāku*) “the period of time for which the moon remained visible after sunset at the beginning of the month, and the time for which it could be seen before dawn towards the end of the month” (Brown, Fermor & Walker 1999/2000, 139), when this could not be established through observation because the sky was obscured by clouds.¹² Although we cannot speak here of an experiment in the modern sense – as a procedure that is capable of falsifying an hypothesis – it is clear from this example that Mesopotamian scholars used an empirical approach as well as technical devices to determine and verify processes and events, albeit with an instrument as simple as a weather vane used to determine (‘test’) the direction of the wind.¹³ David Brown, John Fermor and Christopher Walker (1999/2000, 140 ff.) have pointed out the limitations of the ancient system, and suggested that even until the Neo-Assyrian period, the water clocks should rather be regarded as “divinatory devices” that were “used to show up anomalies”, i.e. contradictions between measured and observed

coals do not produce a flame it is not trustworthy (i.e. it is not in the desired state), if the coals produce a flame it is trustworthy (i.e. the mixture is in the desired state for further processing).”

10 See the connection of *litku*, *litiktu* and *maltaktu* to standardized measuring devices (CAD “true measure”). The ‘checking’ of a shipment of sesame mentioned in the OB letter YOS 2, 127, l. 6, possibly refers to the checking of quantities (as in Sumerian texts with *káb-dug₄*) rather than to quality control. For the ‘approved’ weight of lion bronze figures used in Sargon’s II palace at Dür-Šarrukēn, see Fuchs 1994, 69, ll. 70–71.

11 See Brown, Fermor & Walker 1999/2000, 132 ff. for *maltaktu* as a time-measuring device, lit. ‘testing instrument’, involving the medium of water or sand. Old Babylonian coefficient lists (Neugebauer & Sachs 1945, 135 Ud 60; *ibid.*, 137 Ue 50) provide coefficients denoting intervals of time measured with a *maltaktu*. According to Brown, Fermor & Walker 1999/2000, 136 ff., the three watches of the night and the time between sunsets were measured with the water clock. After 750 BCE, water clocks were regularly used also to measure shorter time periods.

12 See for the text also Virolleaud 1911, 112, ll. 63–68; Oppenheim 1974, 200. According to the analysis of Brown, Fermor & Walker (1999/2000, 139 f.): “the purpose of knowing these time intervals was to determine when intercalation should take place.” The measured intervals were compared with expected ‘ideal values’ (established in other astronomical texts) of a 360-day lunar year, so that discrepancies between the ideal lunar year and the solar year could be counterbalanced. This knowledge assisted the diviners in confirming whether an ominous sign in heaven or on earth had indeed occurred at a specific date, in order to be able to decide the validity of a specific omen and its (often negative) forecast.

13 Lambert 1960, 166, l. 13.

phenomena (which are approximations to empirical reality based on fairly inaccurate measuring devices) and the calculated values based on “*ideal* suppositions and mathematics”, which were also quite inaccurate. Yet, the developments in Mesopotamian astronomy from the 7th century BCE onward, toward more precise mathematical models to account for and predict celestial phenomena, were to a certain extent the result of empiricism (i.e. the recording of observations, as found e.g. in the Assyrian Reports).

Another interesting context in which *maltaktu* ‘test’ occurs is extispicy. In the Neo-Assyrian text KAR 151, the word seems to refer to the checking of an extispicy result through repetition (trial exta), usually expressed by *piqittu*. This text lists the positive or negative value of specific marks and features observed on the entrails (mostly the liver). Certain marks could reverse the result of an extispicy in such a way that, when the overall result was positive, these signs rendered it negative and vice versa. But this reversal seems to be ruled out when the result of an extispicy had been ‘tested’ (put on trial through a second extispicy).¹⁴

The technical notion of ‘testing’ in Mesopotamian medicine can be illustrated by the so-called ‘pregnancy tests’ or pregnancy prognoses, which are also designated as *maltaktu*.¹⁵ The main question regarding the understanding of these tests remains: Had the Babylonians indeed discovered a chemical procedure comparable to today’s pregnancy tests to establish whether conception had in fact occurred? Since most of the drugs used both in medical treatments and in these ‘tests’ have not been identified, it is impossible to evaluate this question from a pharmacological point of view.¹⁶ The issue can be compared with similar ‘tests’ in Egyptian papyri and Greek medical texts, especially in the Hippocratic corpus.¹⁷ Thus, it might

14 Heeßel 2012, 230–231 no. 70; see also Pongratz-Leisten 1999, 323–334; Koch 2005, 273–296 no. 32 obv. 7: uzu.meš *maltakāti dannūtu* uzu man-*ma ul ib-bak^{he-pi}-ti* “Verified extispicies (proven by) tests cannot be reversed by any other sign”; obv. 33–34: uzu.meš *maltakāte [dann]ūtu mimma ul ibbakšunūti* “Verified extispicies (confirmed by) tests cannot be reversed by anything else.”

15 See Reiner 1995, 41; Reiner 1982, 124–138. Such tests are found on an early Neo-Babylonian tablet from Ur (UET 7, 123, edited by Reiner), partially duplicated by the Late Babylonian tablet BM 42313 (the passage is discussed by Scurlock & Andersen 2005, 262). For UET 7, 123, see also Scurlock 2014a, 119–120; 2014b, 582–585.

16 Thus, I hesitate to follow JoAnn Scurlock’s interpretation of understanding these ‘tests’ in a straightforward manner as actual pregnancy tests (Scurlock 2014a; 2014b; also Scurlock & Andersen 2005).

17 For similar material in Jewish treatises on women’s healthcare, see for example Barkai 1998, 200. For the Egyptian material, see the comprehensive overview of attestations in Westendorf 1999, 432–439. In the majority of references a prediction is made as to whether a woman will or will not conceive in the future, only two instances are translated: “(Method) to know whether a woman is pregnant” (even though the prognosis is translated as an indication of a future event, see esp. Westendorf *ibid.*, 438–439 ee); one test predicts complications in a future pregnancy and miscarriage (*ibid.*, 435–436 Bln 196); cf. Bardinet 1995, 223–224, who argues that the objective of the tests in the Egyptian papyri was to predict whether the patient would have a normal pregnancy or suffer some sort of complication.

be helpful to note that the Hippocratic texts mention methods for discovering both whether a woman is indeed pregnant and whether she is able to conceive.¹⁸ The signs of pregnancy are established predominantly by observing the woman's physical appearance and by testing her reaction to certain substances.¹⁹ It is safe to say that the Mesopotamian tests aimed at a prognosis regarding the woman's fertility or ability to conceive rather than indicating whether she was indeed pregnant at the moment of testing. While the Egyptian and Greek materials exhibit many similarities, especially in their use of analogical inference in urine tests (a woman urinates on barley and emmer to see whether or not the cereals sprout) and smell tests (strong smelling substances were inserted vaginally to see if the scent travels to the head, indicating an unblocked internal channel),²⁰ the Mesopotamian tests worked in a different way. Tampons prepared with certain drugs were inserted vaginally in a wad, which was removed again after a while in order to observe changes in color;²¹ an alternative method (also found in Egypt and Greece) was the administration of potions to see whether the woman reacted by vomiting. One example will illustrate the first of the two procedures:

18 See Lloyd 1983, 65 who notes that many of these practices or 'tests' are rooted in folk beliefs.

19 *On Sterile Women* 215 (English translation following Littré 1962, 417):

"If no other signs indicate that a woman is pregnant, these signs indicate that a woman is: the eyes are contracted and sunken, the white [i.e. the whites of the eyes] does not have its natural white color, but seems livid. Pregnant women have a blotched face; at the beginning of their pregnancy they have a distaste for wine, lose their appetite, have heartaches and drool. Take red ochre (*miltos*) and anise, crush it very fine, then moisten it with water, give it to drink and let her sleep; if grooves appear around the navel, she is pregnant; she is not pregnant if there are no (grooves)."

On Superfoetation 16 (Potter 2010, 328–329):

"That a woman is pregnant, if you do not recognize it otherwise: her eyes are compressed and become more hollow than usual, and their whites do not have the natural whiteness, but are more livid."

On Superfoetation 20 (Potter 2010, 330–331):

"If a woman, after receiving moderately strong suppositories, suffers pains in her joints, chattering of her teeth, and she stretches and yawns, she is more likely to be pregnant than one who does not experience any of these signs."

Aphorisms V 41 (Jones 1959, 168–169):

"If you wish to know whether a woman is with child, give her hydromel to drink [without supper] when she is going to sleep. If she has colic in the stomach she is with child, otherwise she is not."

20 Indications of fertility are discussed in *On Sterile Women* 214, Littré 1962, 414, 416; *On Sterile Women* 219, Littré 1962, 422, *Superfoetation* 25, Littré 1962, 488; Potter 2010, 333; *Aphorisms* V 59 (Jones 1959, 174–175).

21 A variation of this procedure was to check if a mixture of drugs inserted into the woman's vagina had dissolved after a while, which was seen as a positive sign. The interpretation of this test seems to be based on analogy: The woman's womb being able to absorb the suppository probably indicated that the woman was also able to retain the male semen, which was deemed necessary for conception.

For test(ing) a woman [...]: you wrap one shekel *tarmuš*, half a shekel of ‘white plant’, one shekel alum in a wad of wool, and insert it [in her womb]. She keeps it there all day long (var. all night), (then) ‘you take it out’ and wash it with water. If (the wad) is [green that woman will *not get*] *pregnant* (var. will not *get* [*pregnant*?], (or) she will abort [her foetus]). If the wad of wool is red [or streaked [with blood] and her womb is white, [that wom]an will *get pregnant*.²²

This interpretation of the tests as a prognosis of a woman’s fertility is borne out by the occasional syllabic writing of the word ‘to be(come) pregnant’ in the present tense form (signalling a process or future event) instead of using the stative (signalling a matter of fact state or result), while the predominant logographic writing *peš₄* is ambiguous. Moreover, the fact that in the gynaecological texts, a woman’s pregnancy is deemed to be an established fact already in the second month of pregnancy and bleeding regarded as abnormal in this context seems to imply that a pregnancy was indicated primarily by a missed period.²³ Be that as it may, what is crucial for our present discussion of efficacy and empiricism is the occurrence of the word *maltaktu* in this context, and that it refers to a technical and empirical procedure based on the observation and the interpretation of signs, interpretations that involved inferences on the basis of analogy and other symbolic associations (e.g. color symbolism).

3 References to drug ‘testing’ outside the medical corpus

It is useful to look briefly at the discussions of empirical methods and the notion of ‘testing’ in other ancient cultures. Geoffrey Lloyd (1975) has commented that in comparison with contemporary philosophers, early Greek medical specialists like the Hippocratics took a greater interest in observation and practical issues of healing, but that they were also limited in their empirical tendencies and hindered by

²² BM 42313 rev. 29–32, var. UET 7, 123, ll. 1–4; see also UET 7, 123 rev. 6’–7’ pointing to the involvement of the midwife: *munusšà.zu lá-šú mál-tak-ta-šú / ki-i peš₄ u ki-i nu peš₄* “The midwife should check her. (This is) her test (concerning) whether she *will get pregnant* or whether she *will not get pregnant*.” In contrast, rev. 14’ of the same text attests to the action of the healer: [... š]u²-a-tú sum-su u [*mal-t*]ak-tú ta-lat-tak “you give her the (aforementioned suppository) [...] and you perform the [te]st.”

²³ Note that the procedures in UET 7, 123 might primarily be concerned with treating women who had difficulties conceiving. The tests may have indicated the effectiveness of treatments directed at enhancing fertility by preparing the womb for conception. On the other hand, it cannot be excluded that the aim of some of the tests was to confirm a possible pregnancy. For instance, it could be surmised that the reaction tests, involving the use of potions, worked on the basis of analogy by drawing a comparison between vomiting and miscarriage (i.e. if the woman vomited, she was (likely to be) pregnant, because the process of vomiting was seen as analogous to miscarriage (in terms of expelling something from different body openings).

the lack of a scientific method (in the modern sense of the term). Graeco-Roman medical writers often emphasize the importance of first-hand experience and research to verify medical theories or the effects of drugs, but they rarely lived up to their own claims in practice.²⁴ Many medical writers like the Hippocratics and Pliny held that the medicine of their day owed a great deal to the collective experience of past explorers who left nothing untried, and that this knowledge should be revisited through new experiments, but in practice they primarily relied on the written accounts of their predecessors as well as on the lore of root-cutters, drug sellers and folk traditions.²⁵ Another recurring element in modern discussions of experience, experiment and ‘proof’ in past medical cultures is that these terms were understood quite differently in their own historical contexts, and we should be careful not to impose our own modern standards in an anachronistic way.²⁶ Thus, many medical recipe books from antiquity and the Middle Ages, including the Mesopotamian texts, describe therapies such as amulets and incantations or prayers as ‘proven’ and ‘tested’ even though a modern point of view would deny these remedies any real basis, apart from a psychological (or placebo) effect.²⁷ Even an authority like Galen, who was critical about the medical efficacy of amulets, writes about one amulet (consisting of a plant root) that he claims to have tested on a boy suffering from epilepsy and found to be effective (K XI 859.12 ff.; XII 573.5 ff.). He observed that the boy never had epileptic fits when he wore the amulet, while they returned when the amulet was removed and offers a rational explanation for the effect.²⁸

24 Lloyd 1983, 133–135, 146–149, 206–210.

25 See especially Lloyd 1983, 82–83, 112–149. The Hippocratic point of view regarding experience and research can be exemplified by *Ancient Medicine* Chapter II, cited in the translation of Jones 1957: “... medicine has long had all its means to hand, and has discovered both a principle and a method, through which the discoveries made during a long period are many and excellent.” The view that any research into the art of medicine has to start from the knowledge collected by predecessors is not unlike the Mesopotamian respect for their own written tradition. The Hippocratic interest in extending their medical knowledge can be seen most clearly in the *Epidemics*.

26 On experience and experiment in Greco-Roman medicine see e.g. Lloyd 1964, 66–72; Nutton 2005, 99–100, 141–142, 148–149; van der Eijk 2005, 279–298; von Staden 1975; Stannard 1999, 513; Thorndike 1923, 53–57, 139–165. An illustrative example of ‘experiment’, which has the function of a proof by analogy, can be found in *Medicaments for Pregnancy Called ‘The Head Shield’*, a medieval Jewish treatise on gynaecology, connected to a recipe to prevent miscarriage: “Take wax, knead it in mare milk, bind it with deer leather, tie it on her belly and she will not abort. And when she delivers, take it off. If you wish to experiment [and to see] if it really works, tie it to the belly of a hen and it will not deliver as long as it is tied on” (Barkai 1998, 203).

27 See, for example, Ullmann 1970, 311–313, 1997, 107–111 for the special genre of the Muğarrabat in Islamic medicine; for ‘experiment’ and ‘proof’ in medieval medical manuscripts, see for example Jones 1998, 203–206; Leibowitz & Marcus 1984, 16. See also below on the culturally varying notion of efficacy.

28 Cited in Lloyd 1979, 42.

The references to ‘testing’ in daily life, crafts and medicine discussed in the previous section can be supplemented by a few attestations of ‘drug testing’ in cuneiform texts that do not stem from the medical corpus. These ‘tests’ are mentioned in two letters and in one literary text and can be described as simple trials that are meant to confirm that a drug had the desired effect by trying it out on a human subject. An Old Babylonian letter from the high official Dāriš-libūr to his lord, Zimri-Līm, king of Mari, discusses the issue at some length:²⁹

Speak to my lord, thus (speaks) Dāriš-libūr, your servant.

Regarding the plants (employed) against ‘the burning of *ṣētu*-fever’ of the physician (*asū*) from Mardamān and of the staff physician, about which my lord has written to me: I have sent their plants, which were gathered on a mountain, under seal with my signature to my Lord, and (I have sent) these physicians with La-gamal-abum, together with their plants.

My lord has already tried the herb for (curing) ‘the burning of *ṣētu*-fever’ of the staff physician, but I myself have (also) tried the herb for ‘the burning of *ṣētu*-fever’ of the Mardamān physician and it worked well (*šammam ša ḥimiṭ ṣētim ... altukšuma damiq*). ‘I tried it many times’ together with Hammī-šāgiš and it worked well (*itti Hammī-šāgiš [ulat]tikma damiq*). Abuma-Nasi (also) drank it and it worked well.

As André Finet has pointed out in his discussion of this letter, different unspecified drugs (*šammu* ‘plant’) for *ḥimiṭ ṣēti* ‘the burning of *ṣētu*-fever’ are tested and compared in terms of their efficacy: the drugs of the ‘staff physician’ (of the palace, *asū ša bīt tērtim*) vs. the drugs of the physician from Mardamān. The drugs of the foreign healer are found to be particularly efficacious. It is intriguing, first of all, that the ‘testing’ or ‘trying’ is not performed by the physicians themselves (they were convinced of their own methods). On the contrary, it is stated that the king, the letter sender and two other courtiers (not known to be physicians) tried the drugs recommended by the physicians. How this repeated ‘testing’ was performed, i.e. whether the drug was administered to a person suffering from ‘*ṣētu*-fever’ or whether Dāriš-libūr and Hammī-šāgiš took the drug themselves, remains unclear. Only the statement that a certain Abuma-Nasi drank it implies that this person was in some way used as a human guinea pig. This is further corroborated by the last lines of the letter, which contain a recommendation to the king not to have someone take the plants as a compound drug in a potion, but separately. By having the herbs tested as simples, the king was thereby able to evaluate and compare the effectiveness of each drug.³⁰ Although we cannot use the Mari letter as direct evidence for drug testing employed by healing professionals, it can be surmised that the testing reported in this letter emulates the practices of healers at that time,

²⁹ Finet 1957, 134–136, 128 pl. IV (A. 2216), ll. 1–24; Durand 1997, 306–307; discussed in Geller 2010, 63–64.

³⁰ An alternative objective of the trials could have been to elicit any negative side effects of the drugs; see below.

although it is likewise possible that healers relied on traditional knowledge and the experience inherited from their predecessors or acquired during their training, which rendered such tests unnecessary. The practice reported in the letter can be understood as a measure employed at the court, which enabled the ruler to evaluate suggested therapies and to compare the expertise of different physicians.

We find a similar security measure, in which a human guinea pig is used before administering a medical prescription to a royal patient, in a letter from the Neo-Assyrian period, written by Esarhaddon's exorcist Adad-šuma-ušur (SAA 10, No. 191 obv. 5–rev. 1). He recommends that a potion intended for the crown prince should first be tested on slaves:

5) *ina ugu-ḫi* 6) *šam-mu ša lugal be-lí* 7) *iš-pur-an-ni* 8) *sig₅-iq a-dan-niš* 9) *bé-et lugal be-lí* 10) *iq-bu-ú-ni* 11) *lú.gál.meš am-mu-te* 12) *ni-ḫar-ru-up* 13) *ni-šá-aq-qi* 14) *ḫa-ra-me-ma* 15) *dumu lugal* Rev. 1) *li-is-si*

Concerning the drug about which the king, my lord, wrote to me, what the king, my lord, said, is quite right (lit. good). We shall give (it) first to these slaves to drink and then later let the crown prince drink it.

It seems that the king himself suggested the 'test' and Adad-šuma-ušur simply agrees with him. Since it is unlikely that the 'slaves' suffered from the same ailment as the crown prince, the drug was probably not tested for its medicinal efficacy. But what then was the purpose of the test? Was it done to be sure that the right dose was used? Or that it showed no adverse effects?

In a third text passage relating to the 'trying' of a drug, it is also a ruler who wants to test a substance. Thus, in the eleventh tablet of the *Gilgamesh Epic*, we find a literary description of a drug 'test', in this case a miraculous plant of rejuvenation. Gilgamesh hears of the existence of this plant from Uta-napišti who discloses the existence of the plant (characterized as "a secret matter, a mystery of the gods," XI 281–282) to Gilgamesh as compensation for his fruitless journey to obtain the secret of eternal life from Uta-napišti. Gilgamesh manages to find the plant, whose description is reminiscent of a spiny coral in an underwater or subterranean environment,³¹ and tells the ferryman Uršanabi that he wishes to test this mysterious plant on an old man before eating it himself:

SB *Gilgamesh Epic* XI 295–300:

Uršanabi šammu annū šammu nikitti / ša amēlu ina libbišu ikaššadu napšatsu / ʿtūbilšuʿ ana libbi Uruk supūri / lušākil šībamma šamma lultuk / ʿšummaʿ? šību iššaḫir amēlu / anāku lūkulma lutūr ana ša suḫrijama

Ur-šanabi, this plant is the 'plant of heartbeat' (i.e. pulsating life), by which means a man will capture his vitality. I will take it to Uruk the Sheepfold, I will feed some to an old man and

31 George 2003, 523–524.

put the plant to the test. If² the old man becomes young (again), I will eat (some myself) and go back to how I was in my youth!”³²

Although this anecdote about an exotic miracle plant (*šammi nikitti* is not found as an actual plant name in plant lists or medical texts) is fictitious, Gilgamesh’s decision to test it on an old man is surprisingly empirical: Although Uta-napišti had described the plant characteristics to him, he might have erroneously picked the wrong plant. By giving it to an old man, he ruled out any danger the plant may have posed, while at the same time discovering whether or not the drug worked as promised.

4 ‘Tested’ remedies and other efficacy phrases in Mesopotamian therapeutic texts

The last decades have seen a growing interest on the part of historians of medicine in the history and transmission of recipe collections (Totelin 2009, 2011; Jones 1998). Notably, so-called efficacy phrases have been shown to play an important part in medical texts as well as other types of handbooks and genres (e.g. magic spells, alchemy), in various cultural traditions and historical periods.³³ On the other hand, the notion of efficacy in the context of non-Western systems of healing, past and present, has been discussed and problematized in recent years.³⁴ Many different functions have been ascribed to efficacy phrases: they are seen as linguistic cues signaling the end of a recipe or marking the boundary between two recipes,³⁵ while at the same time they are often thought to contribute to the therapeutic effectiveness of the recipe itself by boosting the confidence of both healer and patient in the remedy.³⁶

Studies of the notion of ‘proof’ and ‘experiment’ in pre-modern medical systems usually assert that efficacy phrases do not refer to “what we understand by experimentally conducted laboratory tests, clinical trials, pharmacological screen-

³² For differing readings of l. 299, see George 2003, 525 and Foster 2001, 94.

³³ See for example Dieleman 2005, 254–276, for Greek and Demotic magical texts; for medieval Jewish medical treatises, see Leibowitz & Marcus 1984; Schäfer & Shaked 1994 and Bohak 2008, 282 especially for efficacy phrases in magical texts from the Cairo Genizah; an overview is also found in Rudolf *forthcoming* with further literature. For parallels in the *Syriac Book of Medicines*, see the article of Siam Bhayro in this volume.

³⁴ E.g. Etkin 1988; van der Geest, Whyte & Hardon 1996; Nutton 2005, 99–100; Totelin 2009, 219–224.

³⁵ Jones 1998, 200; Totelin 2011, 82; Schäfer & Shaked 1994, 5–7.

³⁶ Jones 1998, 201; Leibowitz & Marcus 1984, 12; cf. Rudolf *forthcoming*.

ing”, i.e. a scientific methodology.³⁷ On the contrary, ‘tried and tested’ efficacy phrases in both ancient and medieval medical works are often regarded as reflecting knowledge acquired and confirmed by direct observation (i.e. something that has been witnessed), in contrast to knowledge confirmed on the basis of rational argument (e.g. Eamon 1994, 55). Similarly, Claire Jones (1998, 203) raises the possibility that the notion of ‘tested’ or ‘proven’ in medieval recipes does not necessarily have to refer to a proof of efficacy, but that it could just mean that a remedy has been tried before.³⁸

Researchers in the field of medical anthropology emphasize in particular that efficacy is “a cultural construction with biological and social dimensions” (for example, van der Geest, Whyte & Hardon 1996, 167; Etkin 1988). It has been demonstrated that factors not related to the drug’s biochemical properties such as emic criteria, beliefs, expectations and social communication can have an impact on a drug’s efficacy.³⁹ For instance, it is believed in many cultures that medicines derive their power not from their inherent substance, but from what the healer puts into them (e.g. by singing to them). A similar phenomenon can be observed in Mesopotamian medical practice, where an incantation was often recited over the prepared remedy, so as to activate it through the divine power residing in the incantation. In reference to the recipes in the Hippocratic corpus, Laurence Totelin (2009, 219–224) has discussed the enormous difficulties we face in interpreting the efficacy of ancient drug usage from a modern biomedical point of view, even in cases where the drugs in question can be identified and modern pharmacological studies have confirmed that these drugs indeed have the same effects that are attributed to them in ancient recipes. At the same time, the other extreme of attributing the efficacy of all ancient remedies to the workings of the placebo effect or entirely to the symbolic connotations attached to drugs is not a very satisfactory conclusion.⁴⁰ Totelin argues that the symbolic connotations of plants could in some cases have had their origin in the properties (i.e. the therapeutic effects) of a plant, while in other cases the efficacy of an ingredient may stem entirely from the connotations attached to it.⁴¹

In a critical assessment of the notions of empiricism and objectivity as they are found in modern scientific discourse and in anthropological approaches to medical

³⁷ Stannard 1982, 70.

³⁸ See also Totelin 2011, 84–86.

³⁹ Emic perspectives of efficacy can differ from biomedical efficacy concepts. Drug use and other medical behavior are often already deemed effective in a society if they assist in producing culturally defined outcomes, e.g. when they affect sickness in some desirable way (Etkin 1988, 300–302).

⁴⁰ Totelin 2011, 223; for culturally determined attributes of drugs that play a role in the construction of efficacy (e.g. color and other physical properties like shape, taste, name) see van der Geest, Whyte & Hardon 1996, 167–169; Etkin 1988, 305–306.

⁴¹ For non-chemical drug properties that could have influenced the choice of remedies in Mesopotamian gynecological texts see Steinert 2012.

plant use in different cultures, Elisabeth Hsu (2010) has highlighted that the application of plants in medical practice and the acquisition of knowledge about plant efficacy does not arise through a detached mode of observation, but is part of “a nexus of human beings in social relations interacting with plants that in turn are interacting with culturally-sensitized bodies in a culturally-modified natural environment and in socially-specific moments”.⁴² She argues further that “a ... drug’s therapeutic effectiveness is neither solely a function of plant chemistry nor of the culture-specific theory of the practitioner who applies the plant, nor of the expectations of the patient. Rather, it results from a *skilled practice* [my emphasis] of putting practitioner-patient-plant-in-the-environment into interaction”.⁴³ As an innovative approach to studying plant use in medical practice, Hsu introduces the concept of *common sense* as an attitude of ‘taking for granted’, which is similar to ‘trying out’ in that it is connected with doing, i.e. the domain of involved practice rather than with reflexive knowledge.⁴⁴ This approach is particularly appealing for the interpretation of the efficacy phrases in Mesopotamian medical texts.

Rather than trying to judge the efficacy of drugs used in Mesopotamian medicine from a purely biomedical point of view or seeing efficacy phrases as an expression of empiricism stemming from detached observation, I would argue that the phrases I am going to discuss are a reflection of the skilled practice of the Mesopotamian healers, i.e. the recipes to which efficacy phrases are attached arose from practice and were repeatedly applied in practice. At the same time, the concept of *common sense* in terms of ‘taking for granted’ offers a valuable approach, because it aptly describes the attitude reflected in the Akkadian efficacy phrases and helps to bridge the divide between a stance that regards the Mesopotamian medical texts as either accumulated practical experience or as received, venerated traditions of knowledge. Thus, we will restrict the following discussion to the use of efficacy phrases in Mesopotamian medical recipes, arguing that both aspects, that of involved engagement and that of ‘taking for granted’ lie at the core of these formulae and are intrinsically interwoven.

In Mesopotamian therapeutic texts, efficacy phrases typically occur at the end of a recipe, as in comparable magical and medical compendia in other cultures, but they do not play a predominant role in marking the end of a recipe, since on medical cuneiform tablets, recipes are typically separated visually by horizontal rulings. Moreover, efficacy phrases do not occur in a standardized way. They are not attached randomly to any recipe, and we usually find only a few recipes on a

⁴² Hsu 2010, 16; Hsu’s stance is strongly influenced by philosophical works such as Merleau-Ponty’s *Phenomenology of Perception* (Merleau-Ponty [1945] 1962) and Bruno Latour’s ‘realistic realism’ (Latour 2000).

⁴³ Hsu 2010, 36.

⁴⁴ Hsu 2010, 31–36.

given medical tablet with the efficacy label ‘tried/tested’ attached to them.⁴⁵ This pattern implies, in my view, that the efficacy formulae in Mesopotamian medical texts are not merely empty phrases, but that they had a communicative function. Given that the contents of Mesopotamian therapeutic texts are often not organized in an easily recognizable way – the recipes on any particular tablet seem to be organized according to several different principles such as diseased body part, type of ailment or type of remedy, e.g. potion, ointment, poultice – we might hypothesize that one functional aspect of the efficacy phrases was that they played a role in heightening the user-friendliness of the text. Thus, efficacy phrases could have helped the healer to select a remedy quickly for a specific treatment (see also below).

For the Mesopotamian therapeutic texts, we can discern the use of a number of efficacy phrases, often combined with each other for additional emphasis. The words and expressions used stress the role of the senses in verifying a treatment and relating it to therapeutic practice. Besides the verbal adjective *latku*, we also find *amru* ‘checked, accounted for; selected’ (from *amāru* ‘to see; to know from experience’), *barû* ‘checked’ (from *barû* ‘to look at; to peer’).⁴⁶ Furthermore, the idiomatic phrase *ana/ina qāti/ī šūšû*, meaning literally ‘issued into/for/from the hand(s)’, has lately been interpreted as an efficacy phrase. It occurs in scribal annotations and in colophons in a similar position as or beside *latku* and qualifies drugs, remedies, rituals, omens, but also titles of compositions belonging to the lamentation priest’s corpus (*kalûtu*). It is possible that the semantic nuance of ‘for the hand(s)’ in this phrase denotes ‘for use’, describing remedies that have proved *useful* in practice, but this supposed meaning for *ana/ina qāti/ī šūšû* is not entirely certain.⁴⁷

Another type of efficacy phrase found in Mesopotamian medical recipes and lists of drugs is *ana X damiq* ‘(a drug) is good for X’, which specifies the purpose

⁴⁵ More standardized is the use of so-called ‘tag phrases’ (see Jones 1998) such as ‘(the patient) will get well/better’ (*iballu/inēš*), which form the typical ending of Mesopotamian recipes.

⁴⁶ Note that in tablet colophons *barû* usually means ‘checked; collated’ (referring to the text or the tablet as a whole). In efficacy phrases, *barû* seems to be partially synonymous to *latku*, and to have the meanings ‘to check; to establish by observation’ (cf. CAD B, 117a sub 2b).

⁴⁷ There are differing interpretations of this phrase, see e.g. in CAD N/1, 317b sub 4’ (“which have been excerpted from the list”). Daniel Schwemer and Tzvi Abusch have suggested translations like “whose use is tried/reliable” (Schwemer 2007, 114, note on BAM 190 obv. 19) and “which are *well proven*” (Abusch & Schwemer 2011, 63, l. 10’ with commentary p. 64, l. 10’ and *passim*) for a few occurrences of *ana qāti šūšû* in medical recipes. In a similar direction point the translations by Hunger 1968, 533, l. 1, Reiner 1961, 10 fn. 1 and von Soden, AHW 909b (“which are suitable for use”), implying that this phrase refers to perceived usefulness. While this suggested meaning could fit some instance, in other examples, the phrase seems to refer to recipes or parts of compilations “that were at hand/available” to a copyist as written sources (see CAD A/2, 371; note especially Black 1987, 34 n. 7; KAR 151 rev. 47, Heeßel 2012, 232, 236). It remains to be investigated whether the variants *ana* vs. *ina qāti šūšû* reflect two different semantic nuances.

or goal of a treatment, and is often combined with a disease name. This phrase typically closes recipes that start by listing ingredients straight away, omitting the usual initial description of symptoms or purpose of treatment.⁴⁸ In the herbals and lists of drugs, *ana ... damiq* is usually found after the description of a plant’s characteristics (*šiknu* ‘appearance’) and/or its name(s) and can be followed by instructions for preparation and administration:⁴⁹

KADP 2 v 46–48:

šam-mu ina muḥ-ḫi-šú muš rab-šu / ʾiš-ni a.šà m[u-š]ú ana munus / la a-lit-ti si[g₅ súd ina] i šéš-š[ú]

The ‘plant on which a snake lies’: ‘grain stalk of the field’ is ‘its name’; it is good for a woman who does not bear; [you pound it] (and) anoint her (with it) [in] oil.

In the therapeutic texts, *ana ... damiq* is found in a similar position or at the very end of the recipe, where it can be combined with *latku*.⁵⁰ Scholars also used this phrase in letters to convey their expert medical knowledge to the Assyrian king.⁵¹

⁴⁸ This type of qualification is very common in recipe collections, for example in Egyptian magic and medical papyri, where expressions like ‘really excellent’ and ‘very good’ normally stand at the end of a recipe as a general evaluation, see Westendorf 1999, 98–99; Stegbauer 2010, 290–297 (‘Brooklyner Schlangenbuch’), §§ 56a, 68, 70, 78, 79a, 93a–b.

⁴⁹ Preparation details occur for example in the plant compendium *šammu šikinšu*. Examples of different ailments found with this phrase are e.g. “it is good for entering the palace” (STT 93, l. 37’ *ana é.gal.kur.ra sig*), “it is good for warding off witchcraft” (ibid., l. 45’ *ana uš₁₁.búr.ru.da sig₂*), “it is good for all ailments” (l. 61’ *ana gig.meš dù¹.a.bi sig*). See similarly KADP no. 33, obv. 7: *ana šim-ma-te zi¹ sig* “it is good for removing paralysis”, ibid. 9, 11, rev. 6’, 9’ *ana dúr sig* “it is good for the anus”; obv. 17: *ana sig gir¹.tab¹ sig* “it is good for a scorpion sting”. A partial translation of KADP 33 can be found in Böck 2010, 166–167. See further examples in KADP 4, ll. 36–37; KADP 2 v 34’, 38’, 42’, 45’, 48’.

⁵⁰ *Ana ... damiq* is found in short excerpts and larger recipe collections. For example, it is appended to the first recipe on BAM 186, an excerpt tablet with recipes that were copied for the preparation of a therapy (*ana šabāt epēši*) by Kišir-Aššur (see below Table 2). See also BAM 555, a tablet with treatments for respiratory ailments, where one recipe contains the explanation: *dida šī saḫunu mu-ša ana kiširte mur₅.meš dù.a.bi sig₅* “This mixture (*billatu*) is called *saḫunu* (a potion); it is good for all congestion(s) of the lungs.” (col. ii 14).

⁵¹ See SAA 10, no. 316 (by the chief physician Urad-Nanja), rev. 15–22: *ú.meš ša ana lugal ušēbilan-ni / ana 2-šu šunu ú.gid ú.pa.ti / iqabbūniššunu ana aḫēiš lā mušlū / akī ildi ša qudasi / kabidi uqqur adanniš issurri / lugal bēli iqabbima ana mēni / danqu ana uš₁₁.búr¹.da¹.[meš] / danqu ana munus ša tāli[te] / danqu* “The herbs which I am sending to the king are of two kinds. They are called ‘Long plant’ and ‘Staff of life’ and are different from each other. The one that looks like a base of an earring, is important and very rare. Perhaps the king will say: ‘What are they good for?’ They are good for averting witchcraft, and they are good for a woman in *lab[or]*.” Cf. SAA 10, no. 200 rev. 6–7, in which the chief ‘exorcist’ Adad-šum-ušur puts the king at ease by assuring him that ‘effective counter-witchcraft rituals’ (‘uš₁₁.búr¹.ru.da.meš sig₅.meš’) are being performed for the patient.

Notably, the use of *damqu* for ‘effective’ (drugs) is already attested in the Amarna correspondence.⁵²

5 Kinds of ‘tested’ remedies in Mesopotamian medical texts

It is important to point out that the qualification *latku* is not only found in medical recipes concerned with therapeutic measures against various ailments, but it also qualifies different magical rituals, from love magic⁵³ to rituals against field pests.⁵⁴ The use of efficacy phrases to qualify magical procedures is a common feature in comparable written works throughout the ancient world up to at least the medieval period.⁵⁵

The qualification *latku* occurs for various kinds of remedies. In the majority of cases we find the phrase *bulṭu latku* ‘tried remedy’, in which *bulṭu* is a general term that subsumed the administration of drugs as well as the performance of ritual actions accompanied by incantations. Thus, in a gynaecological text from Assur (Neo-Assyrian period) we find the ruled-off entry with the phrase “[tried] remedy” following the description of a complex therapeutic ritual that comprises symbolic actions, an offering, prayers by the patient, the repeated recital of an incantation as well as the administration of a potion, a salve and the assembling of an amulet bracelet.⁵⁶

Other recipes contain a statement about the purpose and the form of administration followed by the same phrase:

52 See e.g. NBC 3934, ll. 9’, 14’, 20’, a letter of Ramses II to Hattušili III, in which the pharaoh reports to have sent healers and effective remedies to treat the Hittite king’s illness (Edel 1976, 105–112). Cf. further the OB Mari letter discussed above.

53 See e.g. a recipe for a love charm in KAR 61, a tablet from Assur with incantations and rituals to win the love of a woman, is referred to as *amru latku* “checked (and) tried” (see Biggs 1967, 73 rev. 29).

54 The tablet K. 2596 from Nineveh, containing the last tablet of the ritual series *zú.buru₅.dib.bé.da* “To avert the Locust-Tooth” contains a summary section describing the text as “reliable rituals and readings (*nēpēšē tamarāti latkūti*)” that were accurately copied from a tablet of the Babylonian scholar and priest Papsukkal-ša-iqbû-ul-inni (George & Taniguchi 2010, 106–113 no. 18 iii 16’–20’).

55 For instance in Greek and Demotic magical papyri from Egypt, in Jewish, Arabic and Western sources from late antiquity and the medieval period. See e.g. Dieleman 2005, 275; Bohak 2008, 282; Leibowitz & Marcus 1984; Schäfer & Shaked 1994; Ullmann 1970; 1972; 1997; Puschmann 1978; Jones 1998; Eamon 1994, 28–29, 58–60 (especially for magic and ‘experiment’ in the medieval period). See also the contributions by Siam Bhayro and Lucia Raggetti in this volume.

56 BAM 237 i 17’, *latku* is to be restored at the damaged end of the line, see Scurlock 2014b, 573.

BAM 168: 80–81:

8 ú.meš alla-nu tu₁₅ tar-[x] / ana dūr-šú gar-an bul-tu lat-[ku]

Eight plants for a suppository to stop ‘wind’, you insert it in his anus. A ‘tried’ remedy.

Some medical texts also use alternative phrases like ‘tested’ drugs (*šammu*, lit. ‘plant, herb’) and stones (*abnu*):

BAM 164: 16–17 // (see also below): 7f.:

9 ú.meš mu-ši lat-ku-ti ina geštin nag.meš

Nine tried drugs for discharge, he keeps drinking (them) in wine.

BAM 237 iv 40:

na⁴gug šá múd latiktu

‘tested’ carnelian, (the color) of blood⁵⁷

The latter example is unique and reminds us of the ‘tests’ mentioned in the pharmacological works of Graeco-Roman writers like Dioscorides and Pliny, which are used to check the genuineness of drugs. Apparently, the healers purchased many medicinal ingredients and had to safeguard against counterfeit products on the market. For instance, in *Materia Medica* 5.144, Dioscorides mentions that one can recognize genuine hematite as opposed to a counterfeit product (produced by heating crystalline laminated rock) by checking whether it has any veins.⁵⁸ Thus, the translation “approved” or “genuine carnelian” seems more appropriate than ‘tested’. In addition to plants and stone, we also find ‘tested’ applications like salves,⁵⁹ fumigations,⁶⁰ “leather pouches” (filled with drugs)⁶¹ and bandages.⁶²

⁵⁷ See CAD S, 122 sub 3'; Scurlock 2014b, 577, 581.

⁵⁸ It is remarkable that in Dioscorides' *Materia Medica* the notion of ‘testing’ is only found in connection with ways of recognizing the quality of a drug when purchasing it. This testing is mostly done through the senses (smell, taste, color, consistency, reaction tests, e.g. by burning, mixing with water). For examples see e.g. 1.13, 1.18, 1.52, 1.56, 1.74, 1.80, 1.83). The qualification ‘approved’ is similarly used to describe the quality of drugs (e.g. 1.56, 1.73). Other ‘tests’ are concerned with counterfeit drugs on the market (e.g. 1.79 about the Styra Tree, 2.85 Rennet of a sea calf, 3.55 Cow Parsnip, 5.85 Zinc Oxide).

⁵⁹ *tēqītu latiktu* (e.g. SpTU 2, no. 50, l. 4: *te-qīt la-tīk-tu₄ šá bīr-rat* “a tried salve against filminess (of the eyes)”), *napšaltu latiktu* (e.g. AMT 105,1 iv 21).

⁶⁰ *qūtāru latku* (e.g. AO. 6774 rev. v 16: *qu₅-tar₅ ša geštu^{II} lat-ku* “a tried fumigation for the ears”).

⁶¹ *mēlu/lippu latku*, e.g. AMT 40,2+K.9085, ll. 4'-9' // STT 95+295, ll. 7-12; STT 57, l. 30 // STT 58 “obv.” 1; BAM 3 iv 20-22 // LKU no. 60 = BAM 410 obv. 5'-7' // AO. 11447 rev. 25-26.

⁶² *takšīru latku* (e.g. AMT 105 iv 21; AMT 92,7, ll. 4'-5').

6 ‘Tested’ remedies in a historical perspective: tradition vs. experience

It is hard to establish when the label ‘tested’ remedy was first introduced into the genre of Mesopotamian medical recipes. As far as we can tell, there are no attestations for *latku* recipes from medical texts of the 2nd millennium BCE. Yet, although all the ‘tested’ remedies discussed here are entirely from tablets dating to the 1st millennium BCE, it is evident in some instances that they were copied from older tablets. As discussed above, drug ‘testing’ was of interest to the king and royal court of Mari in the Old Babylonian period, so the notion of tried remedies could already have circulated among healers at that time. It is likewise possible that this kind of information was transmitted orally before it was noted in the texts themselves. Thus, it looks like the qualification ‘tested/proven’ is the final stage in a process of discovering, establishing and recording medical experiences and knowledge in writing. Totelin (2009, 220) comments on the problem posed by the way in which the Hippocratic treatises were collected and transmitted, and much the same could also be said for the Mesopotamian medical corpus: these texts were collected and compiled from a variety of sources, and in many cases remedies were recorded without any testing, because they were “sanctified by the weight of tradition”. On the basis of the Hippocratic treatises, which were transmitted over many centuries, but were also translated into other languages, it can be shown that efficacy formulae can be added to a recipe at any point in its transmission, but it is conspicuous that the Latin versions of *Diseases of Women* differ from Greek predecessors in the ample use of efficacy phrases (*expertum/probatum est*), while there is only one example of a comparable formula in the Greek Hippocratic recipe corpus.⁶³

A second factor that obscures the historical development of ‘tested’ remedies in Mesopotamian medicine is the sparse information the writers provide in the texts about the sources of their knowledge of effective drugs, treatments and about their active involvement in extending this knowledge.⁶⁴ Marten Stol (1991–1992, 59–60)

⁶³ Totelin 2011, 84, citing *Diseases of Women* I, 78 (Littré 1962, 178 ll. 12–14), “you would find nothing better in the world” (at the end of a recipe for an expulsive). Note a similar development observed by Gideon Bohak (2008, 282, 406–412) who attributes the fact that efficacy phrases are current in magical texts from the Cairo Genizah, while they are lacking in the Babylonian Talmud, to being borrowing from Greco-Egyptian texts and the “scribalization of the Jewish magical tradition in the late antiquity”.

⁶⁴ Later traditions are more explicit about sources of knowledge, especially when the information was received from laypersons, see for example the Jewish treatise *Medicaments for Pregnancy Called The Head Shield* (Barkai 1998, 204), mentioning that a recipe for difficult delivery was tested and transmitted by an Arab woman; also writers like Dioscorides, Pliny and Alexander of Tralles indicate when they have received information by word of mouth, e.g. on their travels, see Lloyd 1983; 119–149; Riddle 1985, 19, 84; Puschmann 1978, 562; Thorndike 1923, 56–57.

connects the empirical approach to healing and the freedom to do medical experiments with the *asû* 'physician' rather than the ritual expert (*āšīpu*, *mašmaššu*); he sees the former as the real medical expert, while the latter was a "man of handbooks" and had many concerns (his activities were not restricted to medicine). Stol's idea seems to have been inspired by the fact that it was primarily the *asû* (rather than the *āšīpu*) who has been identified as a specialist of medicinal plants and other drugs (similar to an apothecary). Yet, direct evidence pointing to the active involvement of the *asû* in establishing the efficacy of drugs is rather slight. The medical texts containing efficacy phrases and a preserved colophon show that these tablets mostly belonged to *āšīpus*, but the matter is complicated by the fact that it cannot be determined with certainty when and by whom the efficacy phrases were added to the texts. While these phrases may hint at an empirical approach to Babylonian medicine, at the same time their use in medical texts points, as we shall see, to a strong element of received long-term traditions of scholarly learning.

One of the peculiarities of the Mesopotamian medical texts in contrast to other traditions including Egyptian works, the Greco-Roman medical writers and later (for instance Jewish, Syriac or Arabic) treatises is that the writers of Mesopotamian medical tablets never speak of themselves as the persons who have tested drugs or therapies, nor do we have annotations to copied texts noting that they have confirmed a remedy themselves,⁶⁵ nor do we find anecdotes, which could reveal details about a trial.⁶⁶ Yet, looking at the tablets with *latku*-remedies themselves, including scribal notes and tablet colophons, we can discover a few clues about the status and the development of these recipes as well as their application.

The dominant impression we get from the Mesopotamian medical texts is that of a received tradition of longstanding knowledge that was consequently copied, even though this impression is only skin-deep. A pervading trust in received knowledge about effective treatments and a negative attitude towards trying out drugs outside of accepted practice is something we find not only in Mesopotamian medicine. Also in other traditions, the testing of drugs on patients, on one's own, is regarded as dangerous. Thus, Pliny remarks in his *Natural History* that ancient explorers have "explored everything and left nothing untried" (XXIII 12), but at the

⁶⁵ One can occasionally find first person statements in Egyptian medical papyri, for example in Pap. Ebers 509: "I have seen (the efficacy of the remedy), it was applied by me," see Westendorf 1999, 98–99. For statements in the first person singular connected to the testing of remedies see the discussion in Lloyd 1983, 137–140; examples are found in the writings of Alexander of Tralles (Puschmann 1978) and in Jewish sources (see e.g. Barkai 1998, 203).

⁶⁶ Notable are statements in Egyptian papyri that a remedy has been tried "a million times" (found e.g. in Papyrus Ebers and Papyrus Smith). We are missing such detailed information as is presented for instance by the following example from the *Medicaments for Pregnancy Called 'The Head Shield'* (Barkai 1998, 200), which adds to a recipe for promoting pregnancy: "It has been experimented on many women, including one aged fifty years, who was never pregnant, and she conceived with this treatment."

same time he attacks the medical profession for “making experiments at the cost of our lives” (XXIX 18). A similar stance can be grasped in a few Mesopotamian medical texts, in which a specific illness is regarded as caused by “oil of testing” (*šaman latāki*), which had been used on the patient. The act of anointing with “oil of testing” is regarded as an act of sorcery.⁶⁷ Although the exact meaning of the phrase *šaman latāki* escapes us, we can connect it with practices not backed by tradition or carried out by unqualified persons who sought to investigate the effect of drugs without having recourse or even access to the received medical knowledge in scholarly texts.

If we look at the tablets and recipes that feature efficacy phrases, we can make some observations about the position and frequency of ‘tested’ remedies in medical texts as well as the relation between tablet format/text type and frequency of ‘tested’ remedies. Furthermore, references to ‘tested’ remedies in scribal notes and colophons provide some information about the ascribed ‘origins’ and status of this knowledge in the eyes of the ancient scholars.

The qualification ‘tested’ remedy typically occurs at the end of a recipe, but also in summary notes following a section of recipes, which are similar to colophons in identifying the source of the preceding text or section (i.e. the tablet from which it was copied), sometimes even naming the scholar who owned the source tablet. For instance, BM 40152, a Neo-Babylonian gynaecological collection from Babylon with rituals and medical prescriptions against bleeding, subsumes a group of prescriptions in a ruled section as “[x] ‘tried’ remedies that are *established for use*. [Co]py of a wooden tablet of Nūr-Marduk, a scholar from Babylon.”⁶⁸ The scholar named in this rubric was presumably not the person who performed the efficacy trials for the preceding remedies, but who himself received the knowledge from older textual traditions. The person who first identified the efficacy of certain drugs for specific ailments is never explicitly mentioned by name.

These section summaries qualifying a number of recipes as ‘tried/tested’ indicate a collection process for *latku*-recipes, i.e. a scholarly interest in remedies that had been proven or witnessed to be effective in the past. Another example of this kind of small collection of *latku*-remedies is found in STT 57, a tablet with treatments for various illnesses including incantations and ritual instructions. It begins

67 UET 6, no. 410, ll. 28–29 (Gurney 1960, 224–225): diš na sa.gal-šú i-ta-dar a-na da-ba-bi šà-šú là il-šú na bi ka-šip / i la-ta-ki šéš “If a man’s *sagallu* (a muscle or tendon) is always causing distress (and) his heart does not move him to speak, this man is bewitched. He has been anointed with ‘oil of testing’.” See similarly Abusch & Schwemer 2011, pl. 18, 107, 114 sub 2.5.5 BM 68033 (from Babylonia, Neo-/Late Babylonian period) rev. 6’: diš na i.giš lu-’u šá ú-piš ħul-tim šéš ... “If a man has been anointed with a sullied oil of evil sorcery”. ‘Oil of testing’ is also found in another fragmentary prescription from Nineveh, AMT 5,2, l. 5 (see Thompson 1924, 17–18): diš na i la-ta-ki šéš-ma sag.du gu-[...] “If a man has been anointed with ‘oil of testing’ and (his) head ...”.

68 BM 40152 iii 14–16: [x b]u-ul-tú lat-’ku-’tu₄ šá ana šu šu-šu-ú / [gab]a.ri ^{giš}le-u₅-um / ša ^mnu-úr-^damar.utu um.me.^ra[’] ká.dingir.^rakⁱ’.

with six recipes for *mêlu* (leather pouches (worn around the neck) obv. 1–29), which are followed by a ruled summary line (l. 30), and another section devoted to a different topic:

6 *me-eli lat-ku-tu₄ gaba.ri eri-du₁₀ šá tup-pi* [.....] x x

Six tried pouches. A copy (of an original) from Eridu, of a tablet [of NN,].”⁶⁹

In the majority of cases, we find only sporadically recipes with the qualification *latku* on therapeutic tablets (usually not more than one or two). The low frequency of ‘tested’ remedies in therapeutic contexts points to the special status these recipes had for the healers. Table 1 illustrates this.

We can discern different kinds of tablets containing *latku*-recipes: larger collections (large one- or multiple column tablets with recipes for various or particular groups of ailments, e.g. manuscripts of canonical therapeutic series) and small excerpt tablets with only a few recipes.⁷⁰ It is remarkable that a considerable number of *latku*-recipes are found in the latter text category. Interestingly, these excerpts very often contain a scribal note or a colophon, especially excerpt-tablets from the hand of the healer Kišir-Aššur, a member of the famous family of priests and healing specialists connected with the “Haus des Beschwörungspriesters” at Assur. It may not be a coincidence that these excerpts with *latku*-recipes explicitly state that they were quickly excerpted for preparing a therapy (*ana šabât epēši ḥantiš nasha/issuha*).⁷¹ This evokes the impression that healers often preferred to use recipes with efficacy labels, either, we can surmise, because they had greater confidence in these remedies or because they were interested in trying them on their patients (for example, to see whether they had the same effect in different cases) and thereby further confirm their value. The following examples in Table 2 illustrate efficacy phrases in medical excerpts for practical use.

Sometimes, the remedy’s efficacy can be emphasized by the addition “from the hand(s) of an expert” (*ummânu*), which indicates knowledge handed down from an anonymous scholarly source, possibly referring to an individual whose identity has been effaced or forgotten. The word ‘hand’ could again be understood in a metaphorical way as ‘practice’ and thus may hint at the repeated practical experience connected with these remedies. For instance in AMT 19,6+ (= BAM 516) iv 4,

⁶⁹ Cf. the partial duplicate line in STT 58 “obv.” 1.

⁷⁰ The dividing line between ‘excerpt’ and ‘collection’ is somewhat fluid, because there are also long excerpts on various complaints and larger collections of prescriptions on one group of ailments. E.g. IM 132670, edited by Heeßel & Al-Rawi 2003, is designated as a ‘practical excerpt’. This tablet, which compiles material from different sources and medical series, could also be seen as a recipe collection concerned with common ailments.

⁷¹ See also Maul 2010, 212–213; Hunger 1968. Although the word *epēšu* ‘to do; to perform’ could refer to ‘praxis’ in the widest sense, the present writer’s opinion is that it is connected to the treatment of patients, cf. the use of the derived word *nēpešu* as the most common term for ‘ritual (performance)’.

Tab. 1: Examples of tablets with only one to two *latku*-remedies.

Tablet Number	Type of tablet	Topic	Number of columns (per side)	Number of <i>latku</i> -recipes	Position of <i>latku</i> -recipe(s)
BAM 3 iv 20–22 ⁷²	Long excerpt	Illnesses of the head	2	1	intermixed
BAM 42 42–49	Excerpt	Respiratory illnesses/snake bites	1	1(?)	intermixed
BAM 152 iii 1–7	Recipe collection	Various	2	1	intermixed
BAM 159 iv 2–7, 16–22	Recipe collection	Various	3	2	intermixed
BAM 161 ii 1'–10'; iv 27–v 2 ⁷³	Recipe collection	Various	4	2	intermixed
BAM 168 78–81	Excerpt	Internal illnesses	1	1	Last recipe
BAM 434 iv 25–41, 51–60	Recipe collection	Witchcraft	3	2	intermixed
IM 132670 obv. i 5–11, obv. ii 48–50 ⁷⁴	Recipe collection	Various	2	2	intermixed
STT 95+295 7–12 ⁷⁵	Collection	Illnesses caused by divine wrath	2	1	intermixed

⁷² See Worthington 2006, 18–48; Worthington 2007, 45–46.

⁷³ See Abusch & Schwemer 2011, 61, esp. l. 8–9.

⁷⁴ Heeßel & Al-Rawi 2003, 221–239.

⁷⁵ The duplicate K. 6419 (= AMT 40,2)+K.9085, ll. 4'–9' (Castellino 1955, 274) is too fragmentary to assess the number of *latku*-recipes.

Tab. 2: Tablets excerpted for the preparation of a therapy containing *latku*-remedies.

Tablet Number	Type of 'tested' remedy	Colophon
BAM 164: 13–17	9 ú.meš <i>mu-ši lat-ku-ti ina geštin nag.meš</i> “Nine tried drugs for discharge, he keeps drinking (them) in wine.”	<i>a-na ša-bat dū-ši</i> ^m <i>Ki-šir-Aš-šur</i> [maš.maš é] <i>Aš-šur za-mar zi-ħa</i> “Hastily excerpted for the preparation of a therapy by Kišir-Aššur, incantation priest of the Aššur temple.”
BAM 168: 78–81	8 ú.meš <i>alla-nu tu15 tar-[x] / ana dūr-šú gar-an bul-tu lat-[ku]</i> “Eight drugs for a suppository to stop(?) ‘wind’, you put it into his anus. ‘Tried’ remedy.”	<i>ana ša-bat dū-ši</i> ^m <i>Ki-šir-^dmuati a ša</i> ^d <i>utu-[ibni]</i> <i>ħa-an-īš is-su-[uħ]</i> “Hastily excerpted for the preparation of a therapy by Kišir-Nabū, son of Šamaš-[ibni].”
BAM 177: 1–7	pap 18 <i>a-pi-is-lat lat-ku</i> ^r x ^x “A total of eighteen (drugs for) <i>apīslat</i> -disease, ‘tried’, ...”	<i>ana ša-bat e-pe-ši</i> ^m <i>Ki-šir-Aš-šur maš.maš é</i> <i>Aš-šur za-mar is-s[u]-ħa</i> “Hastily excerpted for the preparation of a therapy by Kišir-Aššur, incantation priest of the Aššur temple.”
BAM 186: 1–12	<i>mar-ħa-šu a[n-n]u-[u] / ana aħ-ħa-zi u a-mur-ri-^rqa^r</i> ^[n] / <i>da-mi-iq lat-ku</i> “‘This’ lotion is good for <i>aħħazu</i> and <i>amurriqānu</i> -jaundice, (it is) tried.” (l. 11–12)	<i>a-na ša-bat e-pe-ši</i> ^m <i>Ki-šir-Aš-šur maš.maš é</i> [<i>Aš-šur</i>] <i>ħa-an-īš na-as-ħa</i> “Hastily excerpted for the preparation of a therapy by Kišir-Aššur, incantation priest of the Aššur temple.”

a two-column manuscript of the 3rd tablet of the series on eye diseases, one recipe adds the phrase:

tēqitu šalimtu ša qāt ummâni latik bari

A reliable salve from the hand of an expert, it is tried (and) checked.

A wound recipe on a Neo-Babylonian medical excerpt from the library of the Šamaš temple at Sippar (Heeßel & Al-Rawi 2003, 227 §22) is designated as:

IM 132670 ii 50:

maltaktu ša šu^{II} um.me.a

A test(ed prescription) from the hand(s) of a (medical) expert.

As an alternative interpretation of *ša qāt(i) ummâni*, it could be suggested that it referred instead to scholarly knowledge received in written form. This would fit the observation that as a variant of “from the hand(s) of an expert”, we occasionally find the phrase “from the mouth of an expert”, which may indicate authoritative scholarly knowledge that was supposed to have had an ‘oral’ origin (i.e. that was not yet included in the traditional canon of texts), but was written down at some point in time, from oral dictation or communication, to be preserved together with already established textual knowledge:⁷⁶

BE 8, No. 133:

9 *[a]n-ni-tú ša pî um.me.a*

10 *la-tik-tu₄ ana ka šá-ṭir*

11 *gíd.da^{md} en-ku-šur-šú*

[Th]is is a tried (recipe) from the mouth of an expert, written down after oral dictation. ‘Long (tablet)’ of Bēl-kušuršū.

We see much the same thing in IM 132670, in a recipe for the treatment of *carbuncles* (or infected lesions) on the head, which is designated as

ma-al-tak-ti šu-ut ka

A test(ed prescription) according to oral tradition.

(Obv. i 11; Heeßel & al-Rawi 2003, 225 § 3)

⁷⁶ See CAD P, 466 sub 6 and Elman 1975, 21–22, for *ana/ina pî ummâni šaṭāru*; for discussion of the related phrases *šūt pî* “oral explanation” and *ša pî ummâni* see also Frahm 2011, 44 ff., who points out that these formulae refer to “oral knowledge only in a limited sense”, since the texts designated as such were put into writing and transmitted in writing after all. While it cannot be proved that *ša/ina pî ummâni* always refers to ‘oral communication/tradition’, it is clear from instances, in which this phrase is contrasted with texts received in written form or with texts belonging to a canonical series, that *ša pî ummâni* “formed a stream of textual transmission of its own, beside the “canonical” series”, and “that this stream had many tributaries” (Frahm *ibid.*, 45; see e.g. SAA 10, no. 8 rev. 2; Hunger 1968 no. 486).

A highly unusual efficacy phrase is found on a Neo-Babylonian tablet from Nippur with a recipe for a potion to treat ‘Seizing-of-the-Mouth’ (aphasia):

CBS 14161: 5 (Leichty 1988, 262):

17 ú *lat-ku-tu šá* ka.dab.bé.da *ša* 7 *um-ma-nu ina ukkin-šú-nu dug*₄

Seventeen tried drugs for ‘Seizing-of-the-Mouth’ which the seven experts prescribed (lit. spoke) in their assembly⁷⁷

These examples imply that the written tradition of medical recipes was constantly supplemented by oral lore, which could be submitted to writing at any historical moment.⁷⁸ A unique endorsement is presented on a first-millennium Babylonian tablet presumably from Sippar containing one recipe for diarrhea (BM 59623), which is described as written down “according to Šulaja, son of Nabû-mudammiq, a descendent of (the family) Egibi”, and promises that: “He whose anus receives (it), will get well.”⁷⁹ The filiation and the absence of a professional title as well as the simplicity of the recipe suggest that Šulaja may not have been a physician, but that the document records a home remedy or family recipe. It is likewise possible that the tablet was owned by an unknown person who wrote down a recipe orally communicated to him by Šulaja (maybe a friend, relative or neighbor).

In a few cases, a tablet seems to be an excerpt of recipes or a larger collection made up of several ‘tested remedies’ or consisting exclusively of recipes with this qualification. A small collection of ‘tried remedies’ may be present in the excerpt tablet BAM 303 written by Kišir-Aššur, which contains four “mixtures/suppositories” (*maššitu*), of which one recipe is described as *bultu latku* (l. 8). The recurrence of this phrase in the colophon possibly indicates that all four recipes were regarded as ‘tried’:

⁷⁷ The reference to an assembly of *ummânu*-scholars discussing medical treatments points to oral discourse and exchange among scholars. For other references to assemblies of *ummânu*, see CAD P, 491 sub 1d. Because the specification of a collegium of seven scholars in this text is exceptional, the expression may allude to the seven mythical sages (*apkallû*). For interconnections between the *apkallû* and the *ummânû* see Lenzi 2008a, 106–122, esp. 113 discussing *Erra* I 162. For bodies of *ummânu*-scholars serving Assyrian and Babylonian kings see Lenzi 2008a, 68–103 with further literature.

⁷⁸ Cf. the discussion in Elman 1975, 22–31, who argues that Mesopotamian scribes partially relied on oral traditions, “even when alternate written sources existed”, and for the fluidity of written and oral, canonical and non-canonical textual material.

⁷⁹ Leichty 1988, 263–264, ll. 6–10: *šá* ka ^m*Šu-la-a a-šú šá* ^{md}*ag-mu-sig₅-iq a šá* ^{mÉ}*gi-bi um-ma šá* ^r*dúr-šú* ^r*ma-ḫi-ru um-ma i-šal-lim*. The recipe consists of an enema made of a mixture of boiled sweet ewe’s milk sprinkled with roasted barley flour. The Šulaja referred to in BM 59623 is otherwise unknown, and because of the differing patronym he cannot be identical with Šulaja, son of Nabû-zēra-ukin of the wealthy Egibi family from Babylon. The family name Egibi is attested in several Babylonian cities, including Sippar, see Wunsch 2014, 304.

BAM 303:

- 24' *bul-tu lat-ku šá šu^{II} um.me.a*
 25' *dub ^mKi-šir-^dAš-šur maš.maš é Aš-šur*
 26' *dumu ^{md}muati-be-sun maš.maš é Aš-šur*
 27' *dumu ^mBa-ba₆-^rmu¹-dù*

Tried remedy from the hands of an expert. Tablet of Kišir-Aššur, *mašmaššu* of the Aššur temple, son of Nabû-bēssun, *mašmaššu* of the Aššur temple, son of Baba-šuma-ibni.

In a number of texts, we find scribal notes which connect references to ‘tried’ remedies with protective formulae (secrecy clauses).⁸⁰ These formulae classify the specialist knowledge contained in scholarly texts as exclusive, to be guarded within the circle of ‘knowers’, and often prohibit its disclosure to a non-expert (‘one who does not know’). Such protective formulae are known from various text genres starting with the Middle Babylonian period.⁸¹ It is important to note that these formulae occur together with efficacy phrases qualifying individual recipes as well as groups of therapeutic procedures.⁸² An intriguing example is BAM 322, a large one-column tablet found in the “Haus des Beschwörungspriesters” at Assur, which was copied by the high priest of the Aššur temple from his own *Vorlage* and might have been a gift for a colleague. The tablet contains two sections of recipes and ritual instructions for therapeutic and prophylactic uses. Each section was, according to scribal notes (in l. 29 and l. 91), copied from two different sources: the first section (ll. 1–28) presents the copy of a tablet from “the palace of Hammurapi” (who ruled from 1792–1750 BCE); the second section (ll. 30–88) which interests us

80 For comparative material about secrecy and healing knowledge, including the use of cryptography, see Westendorf 1999, 99–100, 479; for ‘natural’ sciences and secret knowledge, see for example Ullmann 1972; Eamon 1994. Beside whole secrecy clauses, we also find phrases like ‘royal secret’ (*niširti šarrūti*), ‘secret of the expert’ (*niširti ummāni*), ‘secret of the exorcist’s craft’ (*niširti āšipūti*) attached to medical recipes (Leichty 1988, 263).

81 For an overview, see J. G. Westenholz 1998, 455–456. Kathryn Stevens’ analysis (2013) shows a strong correlation between the professional identity of individual tablet owners and the occurrence of protective formulae in the Late Babylonian period. She therefore suggests to use the term “protected knowledge” rather than “secret knowledge” to refer to texts marked by protective formulae. The earliest known text with a colophon containing a protective clause referring to ‘knowers’ (*mūdū*) of exclusive knowledge is an esoteric list of divinities paired with symbols (PBS 10/4, 12), see Livingstone 1986, 175–187. The text genres labelled as secrets include: lists of gods, stars, cult symbols, incantations, rituals, divinatory texts, medical and astronomical texts, see Westenholz 1998, 456 with references. Note that Westenholz sees evidence that the notion of exclusive knowledge was already current in scribal circles in the 3rd millennium BCE.

82 A single ‘tried’ prescription combined with a protective formula can be found in K. 6419 (= AMT 40,2)+K.9085, ll. 4’–9’, duplicated by STT 95+295, ll. 7–12 (Castellino 1955, 274; Lenzi 2008a, 179; cf. Reiner 1959–1960, 150; CAD Š/1, 490). The recipe to loosen the symptoms caused by divine wrath is designated as “a tried (leather) pouch, a secret of the exorcist. An expert may show it to an(other) expert.” See also the therapeutic ritual with prayers to Šamaš, Girra and protective deities found on LKA 139 and duplicates (van der Toorn 1985, 147–154), especially the section LKA 139 rev. 15–18 // LKA 140 rev. 9’–12’, discussed in Lenzi 2008a, 195–196.

here was copied from a tablet in the “palace of Esarhaddon” (680–669 BCE).⁸³ It consists of nine compound prescriptions (applying between one and three therapeutic procedures, e.g. ointment, potion and amulet), of which at least five bear a preserved efficacy phrase. The main purpose of the prescriptions was to bring about reconciliation of different deities with a patient, but they could also be used for undoing evil and negative signs, warding off illness and bringing about personal success. According to the summary note in lines 89–90 these prescriptions are a collection of ‘tested’ therapies:

BAM 322 rev.

89 *bul-ti né-[pe-ši šá é^d]me.me né-pe-ši lat-ku-ti am-ru-ti ba-ru-ti šá ana šu^{II} šu-[šu-u]*

90 *dù-uš-ma i-šal-[li]-mu ni-šir-ti maš.maš-ti šeš-ma mam-ma nu du_g*

Remedies (and ritual) pro[cedures? from the temple of] Gula. Tried, selected and checked procedures, which are *established for use*. (Whenever) you perform (them), they (the patients) will be alright. Guard the secret exorcism corpus so that no one may disclose (it)!⁸⁴

This tablet is actually a rich source of information about different owners of copies of the text, showing how texts spread within specific professional circles: the prescriptions were preserved in the library of the temple of the healing goddess Gula at Assur, but a copy found its way into the tablet collection of the palace of Esarhaddon as well, to which a high priest of the Aššur temple seemed to have had access. He made a copy available to the family of Kišir-Aššur. One wonders whether one factor for the addition of the protective formulae may have been the considerable demand for scholarly texts (such as medical recipes), across professional boundaries.

A remarkable example of an efficacy phrase combined with a protective formula can be seen in AMT 105,1 (= K. 4023), a Nineveh manuscript containing Tablet III of the therapeutic series *šumma amēlu muḥḥašu umma ukâl* (UGU) on the illnesses of the head. The ruled section col. iv 21–25, immediately before the tablet colophon (iv 26–29), forms a kind of summary appendix to the preceding text and includes a declaration about the origin of the tablet’s contents. This combination of features is highly unusual, because no other example of such an elaborate precis is known to date from other tablets of UGU or other medical texts:⁸⁵

napšalātu takširānu latkūtum barūti ša ana qāti šūšū

ša pī apkallē labirūti ša lām abūbi

ša ina Šuruppak mu.2.kām Enlil-bāni šar Isin

⁸³ See for this text Köcher BAM IV, IX–X and Maul 2010, 212; Lenzi 2008a, 193, 166, 196.

⁸⁴ For line 89 see similarly the colophon of BAM 201, l. 44’, according to which the text was excerpted by Kišir-Aššur from “a wooden tablet with remedies from the Gula temple” (ta šā^{giš}zu šá *bul-ti ša é^dme.me*).

⁸⁵ Cf. Elman 1975, 31–32; Hunger 1968, no. 533; Lenzi 2008a, 117, 200–201; Lambert 1957, 8; Reiner 1961, 10 n. 1.

*Enlil-muballiṭ apkal Nippuri e[zb]u lā mūdû mūdâ likallim mūdû
lā mūdâ lā [ukal]lam ikkib Marduk*

Tried and checked salves and bandages *which are established for use*, from the mouth of the old sages from before the Flood, which Enlil-muballiṭ, a sage of Nippur, has left (behind for posterity) in Šuruppak, in the second year of Enlil-bāni, king of Isin. A non-expert shall show it to an expert, (but) an expert shall not show it to a non-expert. Taboo of Marduk.

The declaration of origin attributes the recipes to the legendary antediluvian sages (*apkallû*), who are well-known from other texts like the so-called “Catalogue of Texts and Authors” (Lambert 1962), where they are listed as authors of scholarly texts together with the god of wisdom Ea and with later scholar-authors (such as Sîn-leqe-unninî, the author of the Standard Babylonian *Gilgamesh Epic*).⁸⁶ The antediluvian sages were regarded as creatures of Ea who partook directly in his knowledge. Their lore of effective salves and bandages was passed down to Enlil-muballiṭ, an otherwise unknown sage from Nippur who, our text says, left it behind for posterity during the rule of Enlil-bāni (ca. 1860 BCE), which seems to mean that this scholar was regarded as a central person in the textual transmission of these recipes. The old age attributed to them adds to the authority of the text and bolsters the social prestige of its user(s)/reader(s).⁸⁷ On the other hand, the claim in AMT 105,1 contains plausible elements. Enlil-muballiṭ could have been an early compiler of medical recipes, known to the redactor of AMT 105,1 through colophons of older sources that he drew on to assemble the text.⁸⁸ What is further interesting in the context of the present discussion is the summary character of line iv 21, implying a kind of editing process. Instead of attaching the efficacy phrase to single recipes, the contents of the whole tablet are described as “tried, checked and *established for use*”. Although we do not know when the summary section was added to the text, it is possible that each of the recipes compiled on this tablet once had the label ‘tried’ attached to it. Yet, it can also be argued that the summary sections such as in AMT 105,1 form a late scholarly innovation, and reflect a stage in the

86 According to Elman (1975, 21–22), *ša pî* refers to authorship or ultimate attribution as well as to oral, authoritative scholarly tradition. It is also used in this sense in the “Catalogue of Texts and Authors” and in LKA 146 rev. 16, referring to “21 (leather) pouches from the mouth of Ea”. Elman regards the reference to the sages before the Flood in AMT 105,1 as an expression of the effectiveness of the remedies in question.

87 Lenzi 2008a, 117 f.; for the antediluvian sages and their postdiluvian successors, the *ummânu*, who saw themselves as descendants of the *apkallû*, see especially Lenzi 2008a and 2008b who coined the expression “mythology of scribal succession” for this ideological construct; see further Galter 2005 with earlier literature.

88 It has to be admitted though that, as Elman (1975, 31–32) has observed, the summary section under discussion does not bear any traces of an Old Babylonian origin and seems to be Neo-Assyrian, which argues against the claim of antiquity that the redactor makes. Thus, it seems likely that the redactor consciously ‘made up’ a textual history to authorize medical material that was part of the tradition.

development of efficacy phrases tied to the formation of compendia and the establishment of authoritative textual series. At this stage, efficacy phrases are combined with other elements such as declarations of origin and protective formulae, as a conscious device to emphasize the importance and authority of the contents. The combination of efficacy phrases with these additional elements to create an authoritative text could have served social ends as well: it can be understood as a strategy used by specialists to protect their primary social and economic capital, the knowledge of effective drugs and treatments, from potential business rivals outside their own professional circle.⁸⁹ On the other hand, the unusual combination of elements in AMT 105,1 iv 21–25 could also be related to the fact that this tablet was a library edition for Assurbanipal’s palace at Nineveh, and reflects the concerns of the copyist of this particular tablet.⁹⁰

While there is some evidence that scholars shared their knowledge and provided copies of tablets in their possession to colleagues, especially colleagues from other cities,⁹¹ we also find occasional hints of competition between groups of scholars, for example in the colophon of an astronomical text (BM 42294), in which the natives of Babylon and Borsippa are granted a privileged status regarding protected professional knowledge: “To impart knowledge of this to a non-citizen of Babylon or a non-citizen of Borsippa or to anyone not learned in such things (lit. ‘to one who is not a son of an owner of knowledge’) is a taboo against Nabû and Nisaba. You must make nothing of this available to someone who is not a citizen of Babylon or Borsippa, nor to one not learned in such things.”⁹² The exclusion of scholars from cities other than Babylon and Borsippa may in this case be connected to the development of guilds of scholars (organized in temple academies) in the Late Babylonian period.⁹³

89 For the unusual variation of the protective statement in AMT 105,1 see Lenzi 2008a, 200–201. The redactor seems to contemplate the possibility that non-initiated persons might get access to the protected knowledge of the healer’s craft, a quite realistic possibility; see Robson (2011, 609), citing SAA 16, no. 65: 2–12, a letter of an anonymous courtier to Esarhaddon (or Assurbanipal) reporting the scandal of a goldsmith attached to the queen’s household who “has taught exorcistic literature to his son; extispicy omens have been explained (*kullumu*) to him, and he has even studied gleanings from *Enûma Anu Enlil*”.

90 Cf. Lenzi 2008b, for the potential use of the “mythology of scribal succession” to assert the scholars’ standing vis-à-vis the ruler.

91 See e.g. Maul 2010, 212 with fn. 77 for tablets written by other scholars in the collection of the family of ‘exorcists’ at Assur. One may ask how common the sharing of knowledge within scholarly circles actually was and on which specific circumstances it depended – I do not know of any systematic or comprehensive study on this subject.

92 Lawson 1997, 72–73, ll. 2–3: [*la du*]mu tin.tir^{ki} u *la dumu bar-ziḫ*^{ki} u *la dumu en iḫ-zu*^l šu-ḫu-zu níg.gig ^dag u ^dnidaba / [*ana*] *la dumu tin.tir*^{ki} ù *la dumu bar-ziḫ*^{ki} u *la dumu en iḫ-zu níg.gig la gar-ma*. See also the colophon in Spar & Lambert 2005, 120–123 no. 20 rev. 12’–13’.

93 Eleanor Robson (2011, 698) has noted a climate of collaboration as well as competition among the diviners at the Neo-Assyrian court. The letter SAA 10, no. 322 by the chief physician Urad-Nanaja, in which he attacks the wrong application of a tampon to a bleeding nose by his colleagues

Protective formulae in appended scribal notes and colophons often show that the texts were regarded as possessing great antiquity, stemming from a venerable old tradition.⁹⁴ It is evident that the knowledge in these texts was held in high respect. As Joan Goodnick Westenholz has suggested, the references to secret lore could be a development of the mid-2nd millennium connected with the fact that literacy was increasingly becoming a prerogative of a restricted class of highly trained professionals. Notwithstanding its unusual character, I argue that the development of these features in the scribal note to AMT 105,1 is also connected to the formation of compendia, and part of the redactional process of medical material in the therapeutic series. As medical knowledge previously scattered in different sources and in the possession of different scholars was compiled into series, it became a much more valuable resource. The insertion of protective formulae and declarations of origin consciously expressed the higher status of this knowledge and represents an example of the authorization of knowledge (to add authority to the text).

7 '(Tried) eye salves of Hammurapi': stability and historical developments of 'tried' remedies in the 1st millennium BCE

A special subcategory of efficacy phrases in Mesopotamian medical texts is presented by the formula 'tried eye salve of Hammurapi', found in recipes on tablets from Assur, Babylon, Borsippa(?) and Uruk, stemming from the first and second half of the 1st millennium BCE.⁹⁵ As Egbert von Weiher in his edition of the examples from Uruk pointed out, it is not entirely clear whether the phrase refers to a recipe of long-standing authority (originating in the time of Hammurapi) or even to a recipe that was used successfully on Hammurapi and became famous.⁹⁶ Recently, Mark Geller (2010, 16 with fig. 1.1) has discussed a medical text from first-millennium BCE Babylonia containing recipes for eye diseases (BM 41293+44866) which consists of an unusual opening line restored as: "[If] Hammurapi's [mot]her

as incompetent and counterproductive, while offering to check personally on the proper performance of the treatment, may imply some degree of competition among the court healers as well.

⁹⁴ See for instance the note in KAR 385 rev. 45, a tablet with snake omens, described as *niširti Šulgi pirišti ummâni* "secret lore (dating back to king) Šulgi, exclusive knowledge of the scholar", cited in J. G. Westenholz 1998, 452. Joan Goodnick Westenholz further cites KAR 4, a tablet from the library of Tiglath-Pileser I, containing entries of "Silbenalphabet A" and verses of the bilingual story of the creation of man. The text, which is designated as "secret lore", is said "to include remnants of lexical and mythological material from the third millennium" (*ibid.*, 456).

⁹⁵ See Böck 2007, 26–27; Fincke 2000, 277; Reiner 1995, 41.

⁹⁶ SpTU 2, 196 commentary to line 12.

suffered from eye disease ...” ([diš u]m-mi Ḫa-^ram-mu¹-ra-pi igi^{II}-šú gig ^{he-pi}), followed by a recipe.⁹⁷ This section of the text was apparently copied from an older, fragmentary source and seems to refer to a famous case of eye disease that was recorded and remembered over more than a millennium. The ‘tried eye salves of Hammurapi’ could – if the restoration of the text is correct – be connected to the treatment of the king’s mother.⁹⁸ According to my own collation, however, I would like to suggest an alternative reading of the damaged line: [ina] ^ru₄¹-mi “[Wh]en (Hammurapi’s eyes were ill)”, which would present us with the beginning of a medical anecdote, so far unprecedented in the Mesopotamian medical texts, which never take the form of personalized case histories, but are always generalized descriptions. Notwithstanding the uncertainty of the passage, it is not impossible that the following recipes on BM 41293+44866 originate in the Old Babylonian period, since there are occasional scribal notes in first-millennium BCE medical texts suggesting that recipes were copied from a tablet ‘from the palace of Hammurapi’.⁹⁹ Thus, it is not necessarily so that we are in each of these examples “presented with a case of retrospective attribution of medical recipes to a venerable old tradition” (Geller 2010, 17).¹⁰⁰

Let us compare the recipes of the ‘tried eye salve of Hammurapi’. The version from Assur is contained in BAM 159 iv 16–22. This tablet, which belonged to the library from the “Haus des Beschwörungspriesters” presents a three-column collection of recipes for different ailments (including two prescriptions for horses) and is, according to Franz Köcher, of an earlier (i.e. early Neo-Assyrian?) date than the

97 According to Böck (2014, 178 n. 72), this line belongs to the reverse (col. iv) of the tablet, yet an inspection of the tablet showed that the preserved side is very flat, pointing more to the obverse. Böck restores instead [diš ki.m]in ge₆ in the crucial line, postulating a scribal mistake during copying and an incomplete sentence (“[If di]tto, the dark – Hammurabi”), which I do not find convincing. Parys (2014, 57) suggests [š]a-mi “drugs (when Hammurapi’s eyes were ill)”.

98 Note also that in Egyptian medical papyri kings and queens of the past are sometimes mentioned in recipes to emphasize the authority of a remedy, see Westendorf 1999, 99, e.g. “(The remedy) was (already) good in the time of king Amenophis III”, or: “Remedy ... made for Shesh, the mother of king Teti ...” (examples are from Papyrus London and Papyrus Ebers). Some remedies even boast that deities first invented them (Westendorf *ibid.*, 375), similar to Mesopotamian texts that attribute the origin of scholarly (including medical) knowledge to deities like Ea. For similar attributions regarding the origin of knowledge to a famous person of the past, in the Talmudic literature, see Lehmhaus in this volume.

99 More likely referring to a younger copy preserving the colophon of an Old Babylonian *Vorlage*, see BAM 322 discussed above.

100 As for instance in AMT 105 discussed above. It is conspicuous though that there are also instructions for protective amulet necklaces “of Hammurapi” (Schuster-Brandis 2008, 167–169, 346–353). See also BM 56418+ ii 35–36, describing a necklace with stones for the purpose of “entering the palace of Hammurapi, king of Babylon” (Schuster-Brandis 2008, 290). In a Neo-Assyrian letter (SAA 10 no. 155), the sender tells the king that he has had an old ritual tablet brought from Babylon “that was used by king Ammurapi, a tablet from (the time) before king Ammurapi”. For similar amulets attributed to Naram-Sîn and Rim-Sîn see Schuster-Brandis 2008; Reiner 1995, 129.

majority of the collection.¹⁰¹ Our eye salve and a second eye salve recipe in iv 2–7 are the only “tried” prescription in the text:

- 16 diš na igi^{ll}-šú a-pa-a-a a-šá u ér šub.šub-a na-ṭa-la
 17 mu-uṭ-ṭu ana ti-šú^{sim}šeš ú babbar u₅ arkab^{mušen}
 18 mun eme-sal-lim^{sim}gúr.gúr ú a-ši-i ú.kur.ra(šimbirida)
 19 7 ú.hi.a šeš igi.4.gál.la.ta.àm ina igi^dtutu
 20 ina^{gīs}érin lá-al ina lâl súd igi^{ll}-šú mar
 21 man-da ta-bi-la tu-ṭep-pi-ma ina-eš
 22 te-qit igi^{ll}.meš ša Ha-am-mu-ra-pí lat-ku

If a man’s eyes are cloudy, blurred and constantly water, (so that) seeing is reduced, to cure him: myrrh, ‘white plant’, ‘spur of a bat’,¹⁰² *emesallu*-salt, *kukru*-aromatic, plant for *ašú*-disease, *ninú*-plant – of these seven plants you weigh one fourth (of a shekel) of each on the scales in front of Šamaš, you crush (them) in syrup, you daub his eyes (with it). You apply a poultice of dry groats (*mundu*) and he will get better. An eye salve of Hammurapi, (it is) tried.

The Late Babylonian parallel on a tablet from Uruk dating to the 4th century BCE, which probably belonged to the library of the descendants of Ekur-zakir, a family of *āšīpus*, reads as follows:¹⁰³

- 10 ½ gín u₅ arkab^{mušen} ½ gín ú babbar 15 še mun eme-sal-lim
 11 ḥab ina giš.gi₆ ḥád.du tu-lam šum₄-ma kúm ina ì ḥal-ša
 12 šum₄-ma en.ten.na ina ì.nun.na súd mar mar-tú šá Ḥa-mu-ra-pí
 13 la-tík-tú e-nu-ma dù-šú kaš^{lú}kurun.na la i-lem
 14 li-te-qí ina gi₆.gi₆ li-šib

You dry half a shekel ‘spur of a bat’, half a shekel of ‘white plant’, ½ of a shekel (lit. ‘15 grains’) of *emesallu*-salt, (and) *būšānu*-plant in the shade, (then) you dissolve it – if it is summertime (lit. ‘heat’), you crush it in pressed oil, if it is winter in ghee – you daub (his eyes with it). “Tried” salve of Hammurapi. When you do (this), (the patient) shall not consume beer from the innkeeper, let him put on salve, let him stay (lit. ‘sit’) in the dark.

Although both recipes contain a number of identical ingredients, there are decisive differences between the two. First, the Uruk recipe does not contain an opening symptom description or a purpose statement, but the treatment reveals that it is indeed an eye salve prescription. This could indicate that the famous Hammurapi

101 See Köcher BAM II, xiv. The mixture of different topics could indeed indicate that the text goes back to an old source. The bulk of the texts in this library belonging to the descendants of Bāba-šuma-iškun and priests of the Aššur temple were written in the 7th century BCE, especially by Kišir-Aššur, see Maul 2010, 202–204. Beside BAM 159, two Neo-Assyrian eye text fragments from Nineveh, AMT 18/4 and BAM 521, preserve this recipe, see now Parys 2014, 20 § 50 for an edition and discussion of BAM 159.

102 For *rikibtu* as the ‘spur’ or ‘thumb’ (‘Nebenklauē, Sporn’) of bats and other animals see von Soden, AHw 984a; Biggs 1967, 25–26, *contra* CAD R, 344–345. For *arkabu* ‘bat’ see also Civil 1984. It is possible that *rikibtu arkabi* is a ‘Deckname’ for a herbal drug, although we are currently unable to cite textual evidence.

103 SpTU 2, no. 50, ll. 10–14; see also Clancier 2009, 393. This tablet contains another ‘tried’ recipe for a salve against filminess of the eyes (see ll. 1–4, esp. l. 4: *te-qit la-tík-tu₄ šá bir-rat*).

eye salve was used in Uruk as a panacea for all eye ailments.¹⁰⁴ Possibly the beneficial effect of this remedy for eye conditions other than cloudy, blurry and watering eyes was not yet recognized in Assur, but was discovered by other healers at some point between the 7th and the 4th century BCE. It is hard to say whether the extended usage of the remedy was based on new empirical knowledge or whether it was due to the growing power of tradition, but it seems highly plausible that the healers also tried successful remedies for related complaints (e.g. various eye ailments). Second, we notice that the Assur recipe contains three more ingredients than the Uruk variant. Three ingredients are identical in both texts, but the fourth drug in the Uruk manuscript is not found in the Assur version. The three identical ingredients ('spur of a bat', 'white plant' and *emesallu*-salt) may have formed the effective ingredients of the remedy.¹⁰⁵ Moreover, the wording and instructions of both recipes differ in a number of ways: whereas BAM 159 contains the unusual phrase that an equal amount of each ingredient had to be weighed on the scales in front of the sun god, emphasizing the importance of accuracy in the amounts of ingredients used,¹⁰⁶ SpTU 2 No. 50 provides exact measurements, which vary for each of the ingredients. This feature of the Uruk manuscript might be regarded as a refinement of the recipe. A further indication of sophistication in SpTU 2 No. 50 in comparison with BAM 159 can be seen in the differentiated instructions about how the salve had to be prepared depending on the season.¹⁰⁷ Another interesting point of comparison is presented by the differing instructions connected to the administration of the remedy. In the older Assur recipe we find the instruction to apply the salve and then cover the patient's eyes with a special poultice, whereas SpTU 2 No. 50 stipulates that the patient should avoid daylight instead of applying a poultice. A last revealing peculiarity of the Uruk text is the dietary prohibition of not drinking beer during the treatment period, since alcohol can affect the clarity of vision and

104 See also the small Neo-Babylonian tablet BAM 382 (= VAT 17406) from Babylon with six eye salve recipes, excerpted from a wooden tablet, which contains a short version of the salve with exactly the same ingredients as in BAM 159. In BAM 382, ll. 9–11, the remedy is merely called "eye salve of Hammurapi", without the qualification *latku* or any indication for which specific complaint it was used (in contrast to other recipes on this tablet). Further evidence that the eye salve of Hammurapi was used for various eye conditions is supplied by BM 54641+54826, another Neo-Babylonian text with eye recipes (probably from Borsippa), in which this remedy was used for flickering or dim eyes (Fincke 2009, 79–104, see rev. 2–3).

105 These three ingredients are also used in the version of the salve in BM 54641+54826 rev. 2–3, but note variations in the measurements: one shekel of 'spur of a bat', one half shekel of "white plant", fourteen grains of *emesallu*-salt.

106 The expected measure *gin* 'shekel' is actually missing (by mistake?) in BAM 159, but it can be inferred from SpTU 2, no. 50.

107 Similar instructions taking into account the season in which the remedy is prepared are already found in medical texts from the first half of the 1st millennium BCE (see e.g. Labat 1959, 4, l. 13; BAM 22, l. 30; BAM 119, l. 6'; AMT 57,10, l. 7; AMT 76,2, l. 4 // AMT 98,3, l. 5; Heeßel & al-Rawi 2003, 225 i 19).

prevent the patient from knowing if the treatment showed the desired effect. All the differences between the two texts point not only to local traditions, but also to digressions and historical developments based on a growing body of medical experience.

Other cases, where a recipe with the qualification *latku* is attested in a number of duplicating sources, illustrate the stability of the recipe within a given period. One example is presented by a recipe for ear infection, called a ‘tried wad’ (*lippu latku*). It is found in the following texts from the first half of the 1st millennium BCE:

- a) BAM 3 iv 20–22 (= VAT 9029, previously published as KAR 202), from the “Haus des Beschwörungspriesters” at Assur, is a two-column Neo-Assyrian tablet that was excerpted (*nasāhu*) from an “Akkadian (= Babylonian) wooden writing board” (*le’û*).¹⁰⁸ It mostly contains recipes for various complaints of the head.¹⁰⁹ It is again noteworthy that the recipe for infected ears is the only one with the qualification *latku* on this tablet. It is duplicated in four other manuscripts:
- b) CTN IV 113 (= ND 4390/IM 67604), a Neo-Assyrian 2-column tablet with recipes for diseased chest and ears from the Nabû temple at Nimrud,¹¹⁰
- c) AO 11447 rev. 25–26, an early Neo-Assyrian excerpt tablet (*nishu maḥrû*),¹¹¹
- d) IM 132670 i 48–50, a Neo-Babylonian recipe collection from the library of the Šamaš temple at Sippar,¹¹² and
- e) BAM 410 (= VAT 14531) obv. 5’–7’, a small Neo-Babylonian tablet fragment from Uruk with treatments for the ears (obv.) and eyes (rev.).

The recipe of BAM 3 iv 20–22 reads as follows:

20 diš na geštu^{II}-šû lugud ú-kal-la ana ti-šû^{sim}šeš^{giš}-eren.BAD gazi^{sar} a-nu-ha-ru (var. an-nu-ḥa-ra)
 21 im.babbar^úHAR.HAR ú babbar 7 ú.ḥi.a àra-en¹¹³ lip-pi tála-pap ana ša geštu^{II}-šû gar-an
 22 lip-pi lat-ku’(x)'

If a man’s ears contain pus, to cure him: you grind (var. together) myrrh, *šupuḥru*-cedar, *kasû*-spice, *annuharu*-mineral, gypsum, *ḥašû*(‘lung’)-plant, ‘white plant’, (var. these) seven drugs you roll up in wads, you put (them) into his ears. Tried wad(s) (i.e. tampons).¹¹⁴

108 See Pedersen 1986, 41–76. Col. iv 47 reads: *ina pu-ut* giš.zu akkad^{ki} zi-ḥa. BAM 3 and duplicates were edited by Worthington 2006, 18–48; see further Worthington 2007, 45–46.

109 The colophon suggests that it contains material from several therapeutic series, and the tablet actually duplicates recipes in the canonical series *šumma amēlu muḥḥušu umma ukâl* (UGU).

110 For the fragmentary colophon see also Hunger 1968, no. 244, which names three generations of descendants who are designated as “Assyrian scribes” (*tušarru ašurrû*). For BAM 419 rev. 8, see BAM 159 iv 25.

111 Edited by Labat 1959, 12–13, 16–17; Geller 2007, 13 (including duplicates). The colophon contains a three-generation genealogy of the scribe; two of his ancestors are called “Assyrian scribes” (^{lu}a.ba bal.til^{ki}, *tušarru aššurî*).

112 See Heeßel & al-Rawi 2003, 221–239.

113 AO 11447 rev. 25b and CTN IV 113 ii 18 add: *sim*; CTN IV 113 has *diš-niš* àra¹-en.

114 Note the variation *lip-pi* vs. *lip-pu*, which Worthington (2006, 31 and 39) understands as a contrast between singular and plural.

It is noteworthy that all of the manuscripts, in so far as they are preserved, use the same seven ingredients and contain the qualification *latku*.¹¹⁵ It is further striking that in BAM 3, the efficacy phrase is marked visually by giving it a whole line to itself, with the entry indented to the right side of the column. In CTN IV 113, the phrase is similarly spread out over one whole line (ii 20). This visual marking attributes a higher salience to this particular recipe and promotes its use.¹¹⁶

A further example of a *latku* prescription preserved in multiple manuscripts is interesting in that it suggests a preference for qualified remedies in actual treatment. The remedy in question is a compound remedy for “nine ‘tried’ drugs for discharge” (*mūšu*), which are administered in a potion. The remedy is attested in four Neo-Assyrian tablets, of which three stem from the library of the “Haus des Beschwörungspriesters” at Assur, while the fourth belonged to the palace library of Assurbanipal at Nineveh. The Assur exemplars are:

- A BAM 161 iv 27’–v 2, an early Neo-Assyrian three-column tablet containing a large collection of recipes,
- B BAM 164: 13–17, a one-column tablet written by Kišir-Aššur, listing drugs for treatments of various internal illnesses,¹¹⁷
- C BAM 116: 4–8, a small excerpt tablet for the preparation of a treatment.¹¹⁸
- D The tablet from Nineveh containing the remedy is
BAM 431 (= K. 9684+9999+Sm.341+Rm.328)¹¹⁹ iv 42–46, a four-column tablet of the series ú.ḫi.a ‘herbal’ (lit. ‘plants’), a collection listing medicinally effective drugs.

We present the score of the remedy in all four manuscripts:

A iv 27’/v 1	úzi-im kù.b[abbar] / numun úgír.lagab(= <i>puquutu</i>)
B 13	úzi-im [kù].babbar ú numun <i>pu-qut-te</i>
C 4	dīš ki.min úzi-im kù.babbar ú numun <i>pu-qut-tú</i>
D iv 42	úz[i-im kù.bab]bar numun ú <i>pu-qut-tú</i>

115 AO 11447 seems to lack im.babbar. In CTN IV 113 ii 20, *latku* has undoubtedly to be restored in the gap at the end of the line; BAM 3 seems to preserve traces of one more sign after *lat-ku* (not copied by Köcher) looking similar to TE; in this case the entry would have to be understood as plural or dual. In BAM 410, the phrase *lip-pi lat-ku* does not seem to represent the end of the recipe; unfortunately, the tablet is not well enough preserved at this point to reconstruct the text.

116 Martha Haussperger (1999, 144; 2000) has commented on the efficacy of some ingredients in the prescriptions of BAM 3 including the ‘proven wad’ in the light of modern pharmacological evidence. Yet, the problem remains that most of her translations of the plant names are still quite uncertain.

117 According to the colophon, the tablet was “hastily excerpted for the preparation of a treatment”, see above Table 2. It is the only *latku*-recipe in this text.

118 Published in Geller 2005, no. 7, ll. 4–8 as ms. G.

119 See Geller *ibid.* ms. MM.

A iv 28'/30'	na ₄ únig.bùr.bùr [.....] / illu šim ^m buluḥ
B 14	únig.bùr.bùr únig.sù.sù illu šim ^m buluḥ
C 5	únig.bùr.bùr únig.sù.sù illu šim ^m buluḥ
D 43–44	na ₄ ú[x n]jumun úa-zal-la / šimšeš [illu] šim ^m buluḥ
A iv 30'	[.....]
B 15	na ⁴ peš ₄ .anše šika nunuz gá.nu ₁₁ ^{mušen}
C 6	na ⁴ peš ₄ .[anše] šika nunuz gá.nu ₁₁ ^{mušen}
D iv 44–45	na ⁴ peš ₄ .anše / šika nunuz gá.[nu ₁₁ ^{muš}] ^{en}
A iv 29'/ v 1	ka.a.a[b.ba ...] / ... 9 ú. meš ⁷
B 16	šimšeš ka.a.ab.ba 9 ú.meš
C 7	šimšeš ka.a.ab.ba 9 ú.meš
D iv 45–46	ka.a.ab.ba / 9 ú
A v 1–2	[mu-ši ²] / lat-ku-ti ina kaš lu geštin n[ag.meš]
B 17	mu-ši lat-ku-ti ina geštin nag.meš
C 8	mu- ^r ši ^r [lat]-ku-ti ina geštin nag.meš
D iv 46	mu-ši lat-ku

If ditto (i.e. ‘if a man suffers from discharge’, only in C), ‘silver-lustre’-plant, *puquutu* seed, *pallišu*-plant/stone, *sāpinu*-drug/stone, (var. seeds of *azallû*-plant, myrrh), *baluḥḥu*-resin, ‘donkey vulva’-shell, shell of an ostrich-egg, myrrh, coral. Nine tried drugs for discharge, he keeps drinking (them) in wine (var. in beer or wine).

The score shows a high degree of agreement and stability in the listed drugs for discharge between the four manuscripts. Small variations in the order of listed drugs notwithstanding, notice that only one ingredient differs in the Nineveh herbal: instead of *sāpinu*-stone, this text lists *azallû*-plant. Another slight difference is found in the instructions for preparation and administration, which are omitted in the Nineveh text (due to the genre of the tablet). With regard to the ailment *mūšu*, a morbid discharge (sometimes bloody) from the penis, it is noteworthy that the ancient healers used several minerals, especially the “abrasive stone”¹²⁰ (attested in two varieties, *pallišu* and *sāpinu*), ostrich egg shell, a maritime shell called ‘donkey vulva’ and coral. Symbolic connotations could have been involved in the use of shells/coral in this context, as these ingredients may have been ascribed a certain efficacy in stopping discharge because they come from a watery place (on the basis of the notion “like cures like”). On the other hand, ostrich egg shell, ‘donkey vulva’ and coral are also used for other fluxes, especially against gynaecological bleeding (Steinert 2012), possibly because they were regarded as having a ‘drying’ effect.

8 Conclusion

Let us briefly summarize our findings regarding ‘tested’ remedies in Mesopotamian medical texts. From the semantics and usage of *latāku* and its derivations it is clear

¹²⁰ For the *pallišu* and *sāpinu*-stone, see Simkó 2013, 24–60.

that the qualification *latku* refers to the special status of such remedies as something that has been tried before and produced desirable or efficacious results (i.e. knowledge backed by practical experience), even though we lack direct information about how such trials were performed by healers in practice. The *latku*-remedies in the texts of the 1st millennium BCE had been established by a long, predominantly written tradition received by the healers, and supplemented by oral lore. This established knowledge was trusted and used with confidence. It can be suggested that *latku* indicates a remedy that *regularly* produced desired effects, i.e. an alleviation of symptoms.¹²¹ This might be understood as a kind of guarantee of efficaciousness.¹²² The high frequency of *latku*-remedies in excerpt tablets written for practical application in therapies shows that the healers often had recourse to these treatments, possibly with the intention to further confirm the efficacy of the remedy through their own experience.

We see little systematic effort to compile *latku*-recipes and to include them in canonical series. There is no general increase in the number of remedies qualified by efficacy phrases once they were included into compendia or canonical therapeutic series. Nonetheless, we find groups of remedies that are designated *latku* as a whole in precis and scribal notes as well as one case in which an entire tablet of a therapeutic series is described as containing ‘tried’ remedies (AMT 105,1 UGU III). Notably, the individual recipes in such a collection do not exhibit efficacy phrases, which implies either a process of redaction which eliminated these individual entries or a late scholarly invention, by which the qualification was transferred to the collected material as a whole to elevate its status to a higher level of authority. The additional elements of these summaries, protective formulae and declarations of origin, could support this interpretation.

Mesopotamian medical knowledge is presented as a body of experience transmitted by an age-old tradition, which largely disregards the contributions of individual scholars, practitioners and the role of folk medicine in the expansion of this knowledge over time. As Mark Geller has formulated it, what makes a treatment tried and true is the ‘experience’ of generations of anonymous practitioners who seem to have simply repeated practices stemming from an ancient, quasi-divine origin (Geller 2010, 17), even though medical knowledge was constantly evolving, growing increasingly refined. In a similar way, scholarly works like the astronomi-

121 The unusual efficacy phrase in BAM 95 rev. 26 (cf. Geller 2005, no. 21) *bul-tu latku ša ina qāti kajamā[nti šūšū?]* “A tried remedy that [was established] by regular practice (lit. “hand”)” seems to imply this. We furthermore suggest that the semantic connection between *latku* ‘tried; proven’, *maltaktu* ‘test’ and *maltaktu* ‘water clock’ (a device to measure time in regular intervals) could be the notion of regularity. That *latku* is tied to a clear idea of efficacy in alleviating symptoms can be seen for example in the prediction of the treatment’s expected effect combined with an efficacy phrase in BAM 152 iii 4 and 7: “The wind locked up (inside the body) will come out. A tried remedy.” (tu₁₅ *es-lu è-a bul-tu lat-ku*), see Geller 2005, no. 21, ll. 4 and 7.

122 Remedies without the qualification *latku* may have worked only with some patients.

cal omen compendium *Enūma Anu Enlil* were “clearly a cumulative product necessitating development over time, even though it was claimed to have originated ‘in the mouth of Ea’” (Rochberg 2011, 29).

Abbreviations

For all other abbreviations see R. Borger, *Handbuch der Keilschriftliteratur* (Berlin 1967–1975) and the *Chicago Assyrian Dictionary* (CAD).

AHW	Von Soden, W. 1965–1981. <i>Akkadisches Handwörterbuch</i> . Wiesbaden.
AMT	Thompson, R. C. 1923. <i>Assyrian Medical Texts from the Originals in the British Museum</i> . London.
ARMT	Archives Royales de Mari Traductions.
BAM	Köcher, F. 1964–1980. <i>Die babylonisch-assyrische Medizin in Texten und Untersuchungen. Band I–VI</i> . Berlin.
BE	Babylonian Expedition of the University of Pennsylvania, Series A: Cuneiform Texts.
BIN	Babylonian Inscriptions of the Collection J. B. Nies. New Haven.
CAD	Oppenheim, A. L. et al. (ed.) 1956–2010. <i>The Chicago Assyrian Dictionary</i> . Oriental Institute, Chicago.
CTN IV	Wiseman, D. J. & J. A. Black 1996. <i>Literary Texts from the Temple of Nabû</i> . Cuneiform Texts from Nimrud IV. London.
Dioscorides	<i>De Materia Medica. Being an Herbal with Many Other Medicinal Materials Written in Greek in the First Century of the Common Era</i> . A New Indexed Version in Modern English by T. A. Osbaldeston and R. P. A. Wood. Johannesburg 2000.
KADP	Köcher, F. 1955. <i>Keilschrifttexte zur assyrisch-babylonischen Drogen- und Pflanzenkunde</i> . Berlin.
KAR	Ebeling, E. 1915–1923. <i>Keilschrifttexte aus Assur religiösen Inhalts</i> . Band I–II. Leipzig.
LKA	Ebeling, E. 1953. <i>Literarische Keilschrifttexte aus Assur</i> . Berlin.
LKU	Falkenstein, A. 1931. <i>Literarische Keilschrifttexte aus Uruk</i> . Berlin.
MSL 13	Civil, M. 1971. <i>Izi = išātu, Ká-gal = abullu and Níg-ga = makkūru</i> . Materials for the Sumerian Lexicon 13. Roma.
PBS	Publications of the Babylonian Section, University Museum, University of Pennsylvania.
Pliny	Pliny the Elder, <i>The Natural History of Pliny</i> . Translated, with <i>Copious Notes and Illustrations</i> , by the Late John Bostock and H. T. Riley. London 1855–1857.
SAA 10	Parpola, S. 1993. <i>Letters to Assyrian Scholars</i> . State Archives of Assyria 10. Helsinki.
SAA 16	Luukko, M. & G. van Buylaere 2002. <i>The Political Correspondence of Esarhaddon</i> . State Archives of Assyria 16. Helsinki.
SpTU 2	see von Weiher 1983
STT	Gurney, O. R. & J. J. Finkelstein 1957. <i>The Sultantepe Tablets I</i> . London. Gurney, O. R. & P. J. Hulin 1964. <i>The Sultantepe Tablets II</i> . London.
UET	Ur Excavation Texts. London.
YOS	Yale Oriental Series. New Haven.

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Siam Bhayro

Theory and Practice in the Syriac *Book of Medicines*

The Empirical Basis for the Persistence of Near Eastern Medical Lore

Abstract: In this contribution I analyse how the Syriac *Book of Medicines* testifies to the persistence of the indigenous Mesopotamian medical system, comprised of drugs, exorcisms and divination, in the face of the rival Greco-Roman system, which was highly theoretical. The way in which these two systems are brought together is compared to a similar clash between two rival systems – indigenous Vietnamese medicine and the highly theoretical Chinese medicine. The role of empiricism in the persistence of the indigenous system is clearly demonstrated in the Syriac *Book of Medicines*.

1 Introduction

In 1894, while traveling through Mesopotamia to collect antiquities for the British Museum, Ernest Wallis Budge found himself in Alqosh, a village with a rich Christian heritage located around thirty kilometres north of Mosul in what is now the predominantly Kurdish area of northern Iraq. There he encountered a learned resident in possession of a small library of manuscripts, one of which, a twelfth-century medical compendium, caught his eye. Despite being incomplete, Budge was very excited at this discovery, calling it ‘the most important and most perfect Syriac treatise on Anatomy, Pathology, and Therapeutics known to us’, and arranging, at his own expense, for a scribe to make a copy for him. He later edited and published the text as the famous *Syriac Book of Medicines (BoM)*, adding his own English translation and accompanying materials.¹

Budge divided the *BoM* into three distinct works, the first being the most scientific, the second containing astrological omens and spells, and the third containing folk prescriptions. For Budge, the opening section was written by an educated scribe, while the other two were penned by more superstitious, ignorant types.² This seemed confirmed by a series of papers published between 1926 and 1946 by Schleifer, in which he identified and analysed numerous Galenic passages, all of

¹ Budge 1913. For Budge’s account of the discovery of the text, see *ibid.*, vol. I, xxxvii and xl–xli. For his assessment of its significance, see *ibid.*, vol. I, xiii–xiv.

² Budge 1913, vol. I, v–xi.

which occur in the first ‘scientific’ part of the *BoM*. It was clear already in Schleifer’s work, however, that much non-Galenic material is interspersed throughout this first part in the form of medical recipes. Indeed, in a recent paper, I demonstrated how the non-Galenic medical recipes probably represent an authentic Mesopotamian medical tradition, and I also suggested that we should refer to the Galenic excerpts as ‘thematic abridgements’, on account of the editorial changes applied to the Galenic material.³

The *BoM*, therefore, is a highly complex source, being Budge’s interpretation of a rushed nineteenth-century copy of an incomplete twelfth-century manuscript, which itself contained abridged and edited quotations of earlier translations of Greek sources intermingled with material of more local origin. It is this complexity that makes the *BoM* both a challenge to the modern reader and an invaluable source regarding the mechanics of reception, about which I have written elsewhere from the perspective of the Greco-Roman material.⁴ In this paper, therefore, I propose to consider the same process from the point of view of the Mesopotamian materials. This is because it is in the reception of these traditions that we discern the resilience of the Mesopotamian materials – a resilience that is accompanied by vociferous appeals to empiricism (see below on *Between Galenic theory and Mesopotamian practice* and *Other features of the counterattack*). We can appreciate the significance of this observation by considering the following parallel scenario.

2 A useful comparison

The *BoM* is a result of what was effectively a clash between two distinct systems of medicine: first, the millennia-old Mesopotamian system comprising of drugs, exorcisms and divination;⁵ second, the newly-imported Greco-Roman system based on humoral theory.⁶ This clash pitted an indigenous system against a foreign, highly theoretical system – a pattern that has been repeated elsewhere in history. A particularly instructive parallel, both for its similarities and for one crucial difference, is the clash between indigenous Vietnamese medicine and the Chinese medi-

³ See Bhayro 2013, 123–144, which includes an appendix that lists Schleifer’s publications.

⁴ See footnote 3. In many respects, the present paper complements the earlier one.

⁵ For the most up-to-date survey and analysis, see Geller 2010.

⁶ There is surprisingly little written about the early (i.e. pre-Islamic) spread of Greco-Roman medicine eastwards. See Le Coz 2004, 17–66; Pormann & Savage-Smith 2007, 12–21. There are also some useful remarks in Dols 1989, although this is more concerned with the Islamic period. See also Becker 2006, 94–95, where he states “Further study of the Syriac reception of Greek medicine and its role as an early intermediary to the Arabic medical tradition is required”. I hope to be able to remedy this in due course.

cal system that accompanied Chinese imperialism and also possessed a highly theoretical basis. As Monnais, Thompson and Wahlberg observe:⁷

Practitioners of [Vietnamese medicine] were often viewed as empiricists, impostors, or even “quacks” by purist practitioners of [Chinese medicine], who saw [Chinese] medicine as deriving from an ancient and learned school ... with a comprehensive philosophy and a sophisticated set of underlying theories. Some considered [Vietnamese] medicine to be merely a form of empirical domestic medicine in which secret family remedies were shared with others for a fee.

In the face of this military and cultural imperialism, the indigenous medical system proved remarkably resilient, due in no small part to the activities of a fourteenth-century monk. Again, as Monnais, Thompson and Wahlberg explain, the counterattack involved committing the indigenous system to writing:⁸

According to Vietnamese tradition, in the fourteenth century a Buddhist monk called Tuệ Tĩnh (1330–c. 1389), one of the “founding fathers” of Vietnamese medicine, wrote a medical treatise entitled [Miraculous Medicines of the South]. It is believed that this text was created to explain Vietnamese medical practices and beliefs within the theoretical framework of Chinese medicine and to argue that Vietnamese medicines, the products of Vietnam’s soil, water and climate, were best for the Vietnamese, as people of the South.

Thus it was not simply a case of writing down the indigenous system, but also of contextualising it within the culturally dominant theoretical framework.

The *BoM* should probably be analysed in the same light – as a written counterattack, against the encroaching Greco-Roman medical system, that contextualised Mesopotamian practice within the Greco-Roman theoretical framework. The main difference between the two scenarios, of course, is that, in the case of Mesopotamia, the scribes who produced the *BoM* and other alphabetic sources were heirs to medical traditions that had already been committed to writing across two millennia in cuneiform sources (see below on *Continuity*).

3 The counterattack

The subtlety and ingenuity of this counterattack is best observed by analysing the first ‘scientific’ part of the *BoM*, which, as stated above, combines the two competing systems. The opening chapter, or at least the first fully preserved chapter, is chapter three (folios 1b–30a), which concerns the head.

⁷ Monnais, Thompson & Wahlberg 2012, 2.

⁸ Monnais, Thompson & Wahlberg 2012, 1.

use of the roots *בִּקַּא* (*bqa*) ‘to try, prove, examine’ and *נָסִי* (*nasiy*) pa. ‘to try, prove, know through experience’, as well as the latter’s pa. fem. sg. emph. ptc. *מְנַסְיָתָא* (*mnasayta*) ‘proved by experience/experiment’. Furthermore, the root *הִשָּׂאֵה* (*hṣah*) ‘to be useful, suitable’ probably refers, in such a context, to a long-term, well-established usage.

Of particular interest is the use of the term *שָׂרִיר* (*šarir*) ‘valid, certain, trustworthy’, which is also used commonly in legal and magical contexts, functioning as the scribal guarantee of effectiveness.¹⁵ Its use here is a very tangible demonstration of what distinguishes twelfth-century Mesopotamia from fourteenth-century Vietnam, namely the existence of a Mesopotamian book culture. The Syriac scribes were able to draw upon over three millennia of *written* herbals, initially in cuneiform sources and later in alphabetic sources, to which they were heirs. As we shall see, this scribal heritage was of great importance.

In addition to such empirical justifications and the scribal guarantee, another strategy employed by the scribes to lend support to the practical remedies is to ascribe the remedies to authoritative figures, e.g.:

... ܩܘܒܝܝܬܐ ܕܩܠܝܢܐ ܕܩܠܝܢܐ ܕܩܠܝܢܐ

Pills that are called *qubaye*, which are of Galen ... (folio 25a)

... ܩܘܒܝܝܬܐ ܕܩܠܝܢܐ ܕܩܠܝܢܐ ܕܩܠܝܢܐ

Another *hiera* which is called (after) Theodoretus ... (folio 24b)

We see, therefore, that the scribes utilise a combination of techniques, including:

- incorporating, albeit in a freely edited form, the Galenic material, thus providing the appearance of a theoretical framework for the ensuing treatment;
- justifying the whole practical section as well as individual remedies by recourse to empiricism;
- appending the well-known scribal guarantee to some remedies;
- and, using medical pseudepigraphy.

This raises the question as to why the scribes resorted to so many methods when assembling the *BoM*. It could be that they understood the psychological importance of such devices, in the same way that modern medicine understands the usefulness of a white coat and stethoscope in calming the patient and raising the odds that a course of treatment will work.¹⁶ This would mean that, in addition to

¹⁵ E.g., for legal contexts, see Friedman 1980, 478; for magical contexts, see texts JBA 7:14, JBA 25:11, JBA 40:6, JBA 55:14, and JBA 61:7 in Shaked, Ford & Bhayro 2013.

¹⁶ See, e.g., Geller 2010, 9.

being a physician's handbook, the *BoM* might also have served some 'patient-oriented' purpose, although this remains conjecture.

6 Continuity in Mesopotamian scribalism

Be that as it may, the fact that the scribes felt sufficiently confident to employ such strategies, particularly freely editing the Galenic material and merging it in a sophisticated way with their native sources, demonstrates that they were probably acutely aware of their own scribal heritage and in no way felt inadequate when confronted with the highly theoretical Greco-Roman materials.

We should not be deterred from such an assertion by the lack of any evidence for the direct translation of a cuneiform medical text into Syriac or any other Aramaic dialect. Given the *Sitz im Leben* of the earlier cuneiform sources, such an expectation is not realistic for the later alphabetic sources. Rather, as Geller has pointed out in relation to Akkadian and Jewish Aramaic astrological sources, we should be more nuanced in our analyses and consider things like structure and terminology when assessing the extent of continuity.¹⁷ In respect of the *BoM*, the structure is an obvious place to start.

The material in the *BoM* is organised in a head down order, although this is not so obvious at first glance. Thus while Chapter 3 concerns the head, Chapters 4–9 concern specific parts of the head: nostrils, eyes, tongue, ears, brain/spinal cord, and mouth. We then move down to the throat in respect of speech (Chapter 10), breathing (Chapter 11), and coughing (Chapter 12), before Chapters 13–21 discuss respectively the lungs, heart, stomach, liver, spleen, bowels, colon, and kidneys. Interestingly, this pattern is also more or less observed in the third part of the *BoM*, where the so-called 'folk prescriptions' begin with remedies for the head and continue until a remedy for what could be swollen legs (numbers 137–267 in Budge's list of contents). This arrangement of the material mirrors that of the medical cuneiform sources, e.g. the *Diagnostic Handbook*.¹⁸

Viewed in this light, the fact that the first part of the *BoM* begins with Chapter 3, on the head, rather than Chapters 1–2, could be extremely significant. Of course, this begs the question as to what the contents of the now lost chapters were, but it also raises a more important question – why were they not copied by the scribe who produced the manuscript from which Budge's copy was made? Rather than assume that the beginning of the text was simply lost, it could be that a decision

¹⁷ See Geller 1998, 224–229.

¹⁸ See Geller 2010, 89. A thorough comparison between the *BoM* and cuneiform sources remains a strong *desideratum*, especially in respect of the use of *materia medica*, invasive techniques (e.g. eye surgery), the transmission of terminology, and the common appeal to empiricism.

was taken at some point in its transmission *not* to copy those two opening chapters and to move directly to copying Chapter 3, which, being concerned with the head, was probably the first chapter to contain anything of practical use.¹⁹ If this was the case, it is possible that the opening two chapters were theoretical introductions to the general art of medicine, humoral theory and the like, i.e. precisely the sort of material that even the earliest translators struggled to inspire their readers to read.²⁰ In short, Galen was an impediment to the practice of medicine – what really mattered was the practical information that had been indigenous to Mesopotamia for millennia and was known to work.

7 Conclusions

The *BoM* would, therefore, represent a brazen misappropriation of Greco-Roman medical lore. Not only has the Galenic theory been all but rejected, but when it is preserved, it is only done so in a freely edited form and in order to enhance the reception of the indigenous medical system. It is almost like the scribes are simply paying ‘lip service’ to Galen, all the while preserving their own traditions, remedies and principles. This very much contrasts with the approach of earlier translators such as the sixth-century Sergius and the ninth-century Hunayn.

The need for such an easy to use, practical medical handbook may have been a major motivation in the production of the *BoM*, but another factor may have been the wider intellectual context of the 12th century – the so-called Syriac Renaissance, which saw a flourishing of Syriac intellectual activity between the 11th and 13th centuries.²¹

It is commonplace to speak about ‘golden ages’ when discussing the sciences in the Near East, most commonly in respect of the early Abbasid period and its age of translation. For oriental Christian sources, we can add the earlier sixth-century translation movement, and also the later Syriac renaissance. What all these undoubtedly significant movements share is that they all esteemed the Classical heritage, particularly Aristotle and Galen, very highly. Of course, this probably goes a long way in explaining why many scholars have been swift to label these periods as golden, as they themselves have often been in thrall to the Classical heritage.

In the Near East, however, the scribal arts had existed for over two millennia before the arrival of Alexander, and highly literate medical guilds already practiced tried and tested remedies. As Greco-Roman medicine spread eastwards, initially as

¹⁹ This is supported by the way that the preserved text begins precisely with the opening of Chapter 3.

²⁰ On the conflict between theory and practice, see Bhayro & Brock 2013, 36–40.

²¹ See Teule 2010.

an accompaniment to various imperial projects and then as Christianity spread along the silk route, it encountered well established local medical systems that proved remarkably resilient in the face of both a cultural and scientific imperialism. When modern scholarship posits the existence of ‘golden ages’ purely in terms of the transmission of Greco-Roman medicine, therefore, it is effectively perpetuating that same imperialist agenda, albeit (for the most part) unwittingly.

In the second half of the 20th century, the scholarly agenda was to celebrate the triumph of Classical culture in the orient, often by focussing on highly theoretical literary sources. Texts such as the *BoM* were largely ignored, or viewed as speaking with three distinct voices, the first being the most ‘scientific’ or ‘educated’.²² This rather mythological approach to the past must be rejected and replaced with a more nuanced picture. In reality, the great Abbasid project was probably, in many practical respects, of very little significance. Texts like the *BoM* demonstrate that, in practice, indigenous Mesopotamian traditions continued and prospered into the 19th century. Empiricism was key to their persistence.

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²² Budge’s distinction between the three parts of the *BoM* is thus very flawed.

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Lucia Raggetti

The ‘Science of Properties’ and its Transmission

Abstract: This paper looks at Arabic compendia stemming from the Abbasid period that group together the properties associated with particular natural objects. This ‘science of properties’ usually gathered together all of the known properties of, say, the body parts and secreta of a single animal within a chapter. The materials in these compendia were often labeled as *manāfi*’ or *ḥawāṣṣ*, terms that describe the ‘properties’ of natural objects and can be differentiated on the basis of the relative transparency of the causal mechanisms underlying a given property. Other labels describe a particular entry as ‘tried’ or ‘tested’, while two different comments that can be translated as ‘astonishing’ and ‘strange’ appear in a number of manuscripts as yet another way of qualifying individual entries. These different labels, in combination with the reorganization of compendia along new lines, were the primary means through which editors could comment on the reliability of particular entries. The paper concludes with a description of the compendia assembled by ibn Zuhr, who developed a set of sigla for assigning individual entries to a specific author. These different types of labels speak not only to questions of effectiveness and underlying models of causation, but also to the nature of authorship within the Arabic compendial tradition.

1 Introduction

I have borrowed the label ‘science of properties’ from Paul Kraus,¹ but I am going to use it in a broader sense in order to facilitate the collection of a wide range of materials that deal with the medical, occult, and magical properties of natural objects – namely plants, animals, and minerals – under a single banner. These properties usually take the form of a recipe, based on a key simple drug of mineral, vegetal, or animal origin. So the recipe appears to be the minimal compositional unit of these texts, and this structure had a significant impact on the transmission

¹ Kraus 1942, 61–70. Kraus used this expression with regard to a particular section of Ġābir Ibn Ḥayyān’s corpus, which deals with the properties of natural objects. Referring to Wellmann 1928, Kraus attributes to Bolos Democritus (or rather to his pseudo-authorship, one would better say today) the massive propagation of the *physikā*, including all kinds of recipes dealing with crafts, agriculture, animals, stones, tricks, etc. Among its sources there probably were the works that reached Hellenism under the name of Ostanēs, Zoroaster, Dardanus, and Apollōbex. For a discussion at length of the ‘science of properties’, see the contribution to this volume by Rochberg.

of these texts. This particular structure remains constant in all the different genres in which these properties are attested. Since in my view, these properties were the object of a science, the way in which they were compiled and transmitted is of central importance for our inquiry.² In this paper, I will not deal with the huge issue of the sources. For our purposes here, it will be sufficient to say that the origins can be found in a Greek and later Hellenistic tradition, which found one of its first authorities in Bolos of Mendes (3rd/2nd centuries BC).³ Nor will I try to stick positivistic labels on the colourful variety of its contents. The fact that this material can be dealt with in terms of either magic or medicine does not affect its value as evidence for the transmission of knowledge.

The ‘science of properties’ covers a semantic field described by the Arabic words *manāfi‘* and *ḥawāṣṣ*. It is more difficult, however, to make a clear distinction between these two categories. Yet the ‘science of properties’ remains a working hypothesis, and a new label is not enough to wipe away all at once the inconsistencies and the problems intrinsic to such a varied lore. First of all, this label does not imply any characterization of a particular textual genre, since these materials are scattered throughout a number of different textual genres. Moreover, they were able to arouse a constant interest on the part of the ancient readership, so their presence stretches over a long time span. Therefore, I will give here a non-comprehensive list of some indicative landmarks that will help us to follow the distribution of these materials throughout the long and rich history of Arabo-Islamic literature.

2 A long story made short

From a very early stage, in the 9th and 10th century, an interest in the topic seems to be well delineated. In the first Abbasid centuries, at least two monographic works on animal properties were composed. In chronological order, one should mention the *Kitāb A‘ḍā’ al-Ḥayawān* by ‘Īsā ibn ‘Alī, and the *Kitāb al-Ḥayawān* by Ibn Buḥtīshū‘.⁴ Both were physicians of Nestorian origin and had brilliant careers at the Abbasid court. Of course it should also be noted that the former was a pupil of Ḥunayn ibn Ishāq, the leading figure of the translation movement, and therefore had to be close, if not directly active, in the Graeco-Syro-Arabic translation movement. These works were composed within the medical arena, but their contents

² Ullmann 1978,

³ For the sources of the literature on properties and their transmission, see Kraus 1942, 61–64. Ullmann 1972, 14; 22; 98; 159. Wellmann 1927, Wellmann 1928, Kruk 2001. For one of the most recently published texts, see Käs 2012.

⁴ See Contadini 2012.

and the rich illuminations in some copies gave them a long and a varied textual history. The incredibly fast development of Arabo-Islamic medicine (Ibn Sinā lived less than one century after these first two authors) has probably overshadowed these kinds of monographic works, in favour of larger and more general medical compilations. Anyway, the properties of natural objects continued to have their place in medical works. In the *Firdaws al-Ḥikma* ('The Paradise of Wisdom'), a medical compendium written by 'Alī ibn Rabbān aṭ-Ṭabarī (9th century), a whole section is devoted to the medical properties of animals.⁵ The great physician and philosopher al-Rāzī (864–925), alongside his monumental *al-Kitāb al-Ḥawāṣṣ* (*Liber Continens*, in the Latin tradition), also dedicated a small treatise to the occult properties of natural substances, the *Kitāb al-Ḥawāṣṣ*.⁶

The 'science of properties' had found a place in the *Corpus Gabirianum*, a collection of works ascribed to the father of Arabo-Islamic alchemy, Ḡābir ibn Ḥayyān. He composed a *Kitāb al-Ḥawāṣṣ* (Book of Occult Properties), collecting information about the properties of all kinds of natural objects and their possible interactions.⁷ This topic continued to be of interest throughout the long and successful history of this literature, if one considers that al-Gildakī (d. 1342) still includes a section dedicated to the topic in his compilation *Durrat al-Ḡawāṣṣ wa-Kanz al-Iḥtiṣāṣ fī 'Ilm al-Ḥawāṣṣ* ('The Pearl of the Pearl Diver and the Treasure of Competence in the Science of the Occult Properties').⁸

The works, or sections of larger works, mentioned up to now share a common organization of the materials. Either longer or shorter, every chapter is devoted to a single animal, and the succession of animals in turn follows a rough yet empirical classification. One has to add that the criteria inferred from this order are not unambiguous and overlap in more than one case: man, carnivorous and predatory animals, large herbivorous animals, smaller ones, birds, insects, and fish.⁹

Ibn al-Bayṭār (13th cent.) can also be counted among the authors who included the natural properties in their works. In the *Al-Ḡāmi' li-Mufradāt al-adwiya wa-l-aḡḍiyya* ('The Book of Simple Drugs') all the listed ingredients are natural substances and their properties constitute an important section of the many entries.¹⁰ Another Andalusian physician (and a member of a famous medical lineage), Abū 'Alā

5 al-Ṭabarī 1928, EI² X, 17–18.

6 See Ullmann 1972, 383 and Käs 2010, I 34–37. This text is witnessed by just one manuscript, preserved in the *Dār al-Kutub* in Cairo.

7 For the partial edition of the Arabic text see Kraus 1935, 224–332; for the position of this work into the *Corpus Gabirianum* see Kraus 1942, 61–95.

8 EI² Suppl. 270, Ullmann 1970 341, Ullmann 1972 240–242. For the text, see the manuscript Berlin Landberg 157 (also in the digital collection: http://digital.staatsbibliothekberlin.de/dms/werkansicht/?PPN=PPN719059984&PHYSID=PHYS_0022).

9 See Ullmann 1972, 50–54 for other systems of classifying the animal kingdom in the Arabo-Islamic Middle Age.

10 Ibn al-Bayṭār 1874, EI² III, 737. For a translation into French, see Ibn al-Baytar 1877–72.

Ibn Zuhr (1160–1131 ca.), dedicated an alphabetically arranged monographic work to these properties.¹¹ This work, as it turns out, is of particular interest, especially when we take into consideration the fact that Ibn Zuhr wrote two different books on *Muğarrabāt* ('Tried out Remedies') and *Ḥawāṣṣ* ('Occult Properties') respectively.

Another item on the list is the *Tibb Nabawī* ('The Medicine of the Prophet').¹² Many an author composed a collection of medical materials derived from the collections of the sayings and the deeds of Muḥammad, based on more or less reliable traditions. Each author created his own particular redaction and his own imprint on the choice of the materials, and the way in which the materials were structured.

This material found its way into *Adab* literature as well.¹³ In the splendour of the first Abbasid age, one can find some traces of it in the monumental compilation of zoographic materials, the *Kitāb al-Ḥayawān* (Book of Living Beings) by the genial polymath al-Jāḥiẓ (776–868/69).¹⁴ A couple of decades later, the penman Ibn Qutayba (828–889) devoted an entire section of his *Kitāb 'Uyūn al-Aḥbār* (The Choice of Transmitted Information) to animals and their properties. As already implied by the notion of *adab*, these works collected a large variety of information, with a correspondingly large number of sources, written and oral, foreign and autochthonous.¹⁵

The properties of natural objects were later considered worthy for inclusion in works that defined themselves as encyclopedias, thanks to their effort to collect all the knowledge on a certain topic and arrange it in a systematic way. So, in al-Qazwīnī's (1202–1283) *Kitāb 'Ağā'ib al-Maḥluqāt* ('The Book of the Wonders of Creation') – an encyclopedic compendium of natural history which attempts a systematic description of the creation – animals, plants, and minerals are listed in alphabetical order, and a suggestion as to the different ways to benefit from their use is never lacking.¹⁶ The encyclopedic works met with great literary success, and one

¹¹ EI² III, 976–77; Ullmann, 1970 312.

¹² See Ibn Qayyim al-Jawziyya 1998 and Elgood 1962.

¹³ The aim of Arabic *adab* (*Belles Lettres*) was to educate and entertain at the same time. The genre specialised in addressing several different social figures, namely courtly bon companions, penman, physicians, etc. See EI² I, 175–76. For a recent semantic analysis of *adab*, see Guth 2010.

¹⁴ EI² II, 385–87; for partial translations of the *Kitāb al-Ḥayawān*, see Pellat 1969, 130–185 and Jāḥiẓ 1988. Al-Ġāḥiẓ left us a vivid portrait of the widespread attitude towards animals and animal substances in ninth-century Iraq, [III, 253] "Cleanliness of the pigeon and use of its droppings. The pigeon is a domestic bird, common and cherished by people, famous for its cleanliness, to the point that its droppings do not provoke disgust and do not have an unpleasant smell, whereas the rooster's and hen's do. The experts in the treatment of bladder stones use its droppings. The farmers find in these many useful properties. The baker leaves a bit of it in the leavened paste, so as to make the loaves raise; later, it is not possible anymore to distinguish what they contain. Its droppings are useful indeed, as the experts of bladder stones know well. Pigeon's droppings are useful also in a particular phase of the tanning process", al-Ġāḥiẓ 1965, III 253. All the translations, if not otherwise indicated, are my own.

¹⁵ Kopf Bodenheimer 1949.

¹⁶ EI² IV 865–67; Von Hees 2005.

may observe an approach to their internal organization that is similar to al-Qazwīnī's work. Ibn Faḍl Allāh al-'Umārī (1301–1349), who served in the Mamluk chancery in Cairo and Damascus, composed the *Kitāb Masālik al-Abṣār fī Mamālik al-Amṣār* ('Ways of Description Concerning the Most Populous Provinces'), an encyclopedic compendium organised around administrative practices.¹⁷ The author devoted three different large sections to animals, trees and herbs, and minerals respectively, giving for each entry a detailed description and a number of its practical and medical uses.¹⁸

Though it was composed as a lexicon rather than an encyclopedic work, the *Ḥayāt al-Ḥayawān al-Kubrā* (The Great Life of Animals) by ad-Damīrī (1344–1405) cannot be excluded from this list. The entries in this lexicon consisted of the names of animals, arranged in alphabetical order; the entries, in their turn, include several different aspects of animal life especially in relation to men, and their properties also find a place in these descriptions.¹⁹

3 Lexicographical clues

Even though textual genre *per se* must be seen as inadequate for a proper systematization of this material, the indisputable success with which this material moved across genres highlights the interest that it found with the contemporary readership. The apparent lack of a definable textual genre does not prevent one from making use of other approaches, so as to bring some order to this entangled mass of information. As said above, these recipes and prescriptions were based on the properties of natural objects and circulated under two different names: *manāfi'*, and *hawāṣṣ*. The lexicographical description of these two categories gives us some clues to define the distinctive character of each of these labels.

- *manāfi'*/*manfa'a*: a cause, or means of advantage, profit, utility; or benefit: and simply, advantage; profit or profitableness; utility, use, usefulness; or benefit. Contrary of *maḍarra*.²⁰
- *hawāṣṣ*/*hāṣṣa*: a property of a thing not found, or not existing, either wholly or partly in another thing
- *hawāṣṣ*/*hāṣṣiyya*: a property, or particular or peculiar virtue which is an unknown cause of a known effect; as that by which a medicine operates: the former differs from the latter in being conventionally applied to an effect, or

¹⁷ EI² III 758–59.

¹⁸ See al-'Umārī 1999 and al-'Umārī 2008.

¹⁹ See Somogyi 1950 and Somogyi 1957.

²⁰ Lane 1968, II 747.

effective property, whether the cause of its existence be known or not. And *ḥawāṣṣ* is a quasi-plural noun, not a plural.²¹

In light of these definitions, the difference between *manāfiʿ* and *ḥawāṣṣ* lies in the transparency of the underlying causal relations. Within a comparative approach, one may infer that the relation between cause and effect in the *manāfiʿ* is clear and can be deduced with a common sense approach. In the latter, the two different aspects meld, resulting in a peculiar and ineffable process of causation. Perhaps something might have been said about a clear distinction between these two categories in the early phase of their use, but they soon became almost inextricably confused.

Another Arabic expression, that is *muğarrabāt*, is often mentioned side by side with *manāfiʿ* and *ḥawāṣṣ*. The *muğarrabāt* include the description of medical practices and procedures that have allegedly been ‘tried out’. Describing them as a proper textual genre, Ullmann has stated that it would be a huge anachronism to define the *muğarrabāt* as a collection of experimental data. He argues that they are instead recipes proven to be effective through experience. So they are more *empirica* rather than *experimenta*.²² In other words, the *muğarrabāt*, intended as a medical literary genre, are records of physicians’ case histories, treatments, medical experiences, and remedies which are at least ‘described’ as real cases.²³ Again lexicography may help us to understand some other implications of this expression:

ğarrabahu: he tried, he made trial of, made experiment of, tested, proved, assayed, proved by trial or experiment or experience. (...) namely, a thing, time after time.²⁴

The Arabic ‘intensive’, a verbal stem known to imply a notion of verbal plurality, can be seen as a hint about a particular kind of successfully repeated experience.²⁵ The *muğarrabāt* seem to depend upon the human experience of a certain recipe or procedure. Based on the curious mixtures and procedures described in these recipes, the addition of the expression ‘tried out’ easily gives the impression of an experimental phase in its prehistory, thereby guaranteeing a higher level of reliability for its contents. However, any stress on the existence of a modern empirical procedure in the background is almost certainly anachronistic: in a pre-galilean/modern society, why would the experimental method have been seen as a guarantor of the soundness of a certain procedure?

²¹ Lane 1968, VIII 3036.

²² Ullmann 1970, 311.

²³ Álvarez Millán 2010, 195–197.

²⁴ Lane 1968, II 402, being *muğarrab* the passive participle of the second form of the verb.

²⁵ I would thank Riccardo Contini for his precious advice on the linguistic aspects of this question.

The expression *muğarrab* was also actually used outside of its peculiar textual genre: the word was simply added at the end of some recipes, as a comment stating their alleged efficacy. In this way, the expression could easily find its way into many different textual traditions: the personal point of view and comment of a single copyist, who felt confident enough to 'certify' a recipe's efficacy, could be included in the text almost anywhere in the process of transmission. Whether the *manāfi'* and *hawāṣṣ* have borrowed the expression extrapolating it from its genre-context, or the *muğarrabāt* genre originated from a further reflection on the importance of medical observation or from some kind of discontent towards such properties, remains an open question which can only be answered by an extensive study of the sources.²⁶

Combining the lexicographical perspective with the different genres in which these properties are attested might give the impression that the riddle is nearly solved. However, the actual state of the texts is much more complex, and there are many overlapping situations and inconsistencies in the use of the words *manāfi'* and *hawāṣṣ*. Each textual tradition has its own peculiar aspects and a huge number of unedited texts still need to be studied before we can formulate a more precise general description of the topic.

4 Authorship and tradition

Authorship can be seen from many different perspectives and warrants careful scrutiny. In almost all the the works listed above, one can point to a strong authorial figure, who could allegedly have provided a guarantee for the transmission of the text.²⁷ But again the situation is actually much more complex.

There certainly were some cases in which a strong authorial figure and his pupils were able to safeguard and have some control over the transmission of a text. Notwithstanding a strong authorship, for example that of al-Qazwīnī or Ibn Buḥtīšū', some of these traditions are witnessed by hundreds of manuscripts within

²⁶ Álvarez-Millán 2010, 198 underlines a singular point: the word *muğarrab* never occurs in a proper collection of medical experiences, but only at the end of other kind of recipes. Moreover, the three main books identified as *Kutub al-Muğarrabāt* ('Books of Tried out Remedies', by ar-Rāzī, al-Hāšimī, and Abū 'Alā ibn Zuhr) were posthumous compilations of medical cases dealt with by a physician, usually collected by one of the pupils. All in all, this does not support a hypothesis suggesting that the word *muğarrab* migrated from a proper and high medical genre towards a de-contextualized use in popular medicine and magic.

²⁷ For the attempt of the Arabo-Islamic scholarship to control the transmission of authorial texts, see Rosenthal 1947; for the certificate of copy (*iğaza*) see Gacek 2009, 52–56.

the complex frame of a multilingual tradition. Thus far relatively few of them have been actually taken into account in writing of a critical history of the text.²⁸

Then there are those works whose author was an outstanding intellectual figure, but later sank into oblivion, or legend. These conditions generally result in a high degree of variability in the transmission, with copyists taking on an increasingly authorial role.²⁹ In other words, they produced huge innovations at different levels in the texts, either carrying out a selection of the materials (additions or abridgements), or modifying the text's structure and the disposition of the materials, the language, the style, etc.

Pseudo-epigraphic attributions represent another possible variation on the general idea of authorship. The author or transmitter could decide to ascribe the work either to an authoritative figure (e.g. Aristotle), or to a fictitious and mythic character, such as Hermes Trismegistos, Idrīs/Enoch,³⁰ or Iṣrāsīm, the Indian concubine of the caliph Hārūn al-Rašīd.³¹ In such cases, the copyist is probably granted even more compositional liberty in that the alleged and the actual 'author' no longer reside in the same person.

And finally, there are the enormous number of anonymous works and fragments on this topic, probably – however unfairly – at the very bottom of the list of unstudied texts. Again it emerges that the texts that have been edited and studied up to now are far from sufficient, if we are to formulate a plausible hypothesis about the effect of different kinds of authorships upon the fluidity of such traditions. Still, a few case studies in which the features just described are concretely embodied may provide a glimpse into the complex reality of these textual traditions.

4.1 Abū 'Alā bin Zuhr and his *Kitāb al-Ḥawāṣṣ*

Abu 'Ala ibn Zuhr was a member of a famous lineage of Andalusian physicians. His medical literary output includes two different works, a *Kitāb al-Muğarrabāt* ('Book of Tried out Remedies') and a *Kitāb al-Ḥawāṣṣ* ('Book of Occult Properties').³² So it seems that in the 11th century the distinction between the two spheres

²⁸ Many of these works have been printed, but they are still waiting for a thoroughly critical edition based on all the available witnesses. See Witkam 1988, 94–98.

²⁹ For the idea of the copyist as author see Cerquiglini 1999, 33–34.

³⁰ EI² III 1030–31 ; Ullmann 370–71.

³¹ De Slane, 476; Ullmann 1972, 382.

³² The *Kitāb al-Muğarrabāt* has been edited and translated into Spanish, see Álvarez Millán 1994; as for the *Kitāb al-Ḥawāṣṣ*, the preparation of a critical edition and translation in English is in progress; for the moment six witnesses have been available to me: Wien 1460, Bodl. M. Marsh. 520, Berlin 6166, Paris Ar. 2954, Cambridge Or. 1418, Hamburg Or. 100, Leiden Or 713 For a complete list of manuscripts, see Ullmann 1972, 28.

was still clear, at least for someone drawing on a particular interpretation of the two terms. The contents of the two books differ so considerably that this difference seems to be beyond any reasonable doubt. Two concrete examples – a preparation from the *Muğarrabāt* and the *Ḥawāṣṣ* of an animal, a plant, and a mineral – will help to clarify the differences between the two works:

- *Kitāb al-Muğarrabāt*:
 - Prescription by him [Abu Ala l-Zuhr] for a man who suffered from pain and roughness in his throat and who had developed a cold. On an empty stomach he must gargle with this, that is, he must take one ounce of mulberry syrup and half ounce of walnut syrup, mixing it all with three and a half ounces of rose-water. He must gargle with it hot, if God pleases, be He exalted.³³
- *Kitāb al-Ḥawāṣṣ*:
 - *The Man*: if one fumigates something with man's hair, then this will become yellow; if a dead man's tooth is hung on an aching tooth, then the pain will cease; and if it is put over the head of a sleeping man, his sleep will become deeper.³⁴
 - *The Squill*: if a wolf steps on it, then it will fall ill, and sometimes it may die; so, the fox places it around its pups to keep the wolf and other predators away from them; if the squill is dried, a *dirham* of it is pulverized with the same quantity of pigeon's droppings, mixed with honey and drunk for some days, then this will crumble bladder stones.³⁵
 - *The Magnet*: if it is hung on a broken bone, it will fix it; if it is held by a hand suffering from gout, then it will be useful to it and it will prevent its spread; if a man wears it in a signet ring, then he will heal from all the problems of the joints.³⁶

Given the many other examples, which cannot be presented here, the differences seem to concern the ingredients, the preparation, and the relation between cause and effect. The *ḥawāṣṣ* are often based on *Dreck-Apotheke* ingredients. In general the simple drug is the starting point of every recipe. The preparatory process is pretty simple, and the cause-effect relation remains unknown: it appears to be something given which does not need (or cannot be provided with?) any explanation. On the other hand, the *muğarrabāt* are practical descriptions of more complex pharmacological preparations, the effect of which is based on galenic physiology.³⁷

³³ Álvarez Millán 2010, 197.

³⁴ Ms. Wien 1460, 2r.

³⁵ Ms. Wien 1460, 8r–8v.

³⁶ Ms. Wien 1460, 86v.

³⁷ On the other hand, *Manāfi'* and *Ḥawāṣṣ* seem to be implicitly ruled by sympathy, analogy, homeopathy, etc.

They hardly ever make use of any ‘disgusting ingredient’ of animal origin and the focus of the text is on the illness which needs to be cured and the way of doing so.

Even though the differences in the contents seem to be so easily observable, the manuscript tradition of the book on occult properties has sometimes misled some scholars, largely due to misunderstandings of its various titles.³⁸

- Wien 1460: “*qad ḡami‘tu fī kitābī haḍā min al-fawā‘id al-muntaḥabat muntaḥabat wa-l-ḥawāṣṣ al-ṣaḥīḥah*” (1v).
- Bodl. M. Marsh. 520: “*haḍā kitāb muḡarrabāt al-ḥawāṣṣ*” (1v)
- Berlin 6166: “*Ḥawāṣṣ ibn Zuhr*” (1r)
- Paris Ar. 2954: “*Ḡami‘ fawā‘id al-muntaḥab al-ṣaḥīḥ min al-ḥawāṣṣ al-muḡarrabah*” (4v)
- Cambridge Or. 1418: “*Haḍā kitāb al-ḥawāṣṣ al-muḡarraba*” (1r)
- Hamburg Or. 100: “*Kitāb al-ḥawāṣṣ al-kabīr li-Zuhr bin Zuhr al-Maḡribī fī-l-ma‘ādīn wa-l-nabāt wa-l-ḥayawān*” (72r)
- Leiden Or. 713: *Fawā‘id al-muntaḥab al-ṣaḥīḥ min al-ḥawāṣṣ* (1r)³⁹

Now clearly it is only through a careful perusal of the contents – and by no means merely the titles – that we can evaluate the actual contents of this tradition.

The value of Abū ‘Alā ibn Zuhr as a landmark in the complex tradition of the ‘science of properties’ is also confirmed by the list of sources given in the introduction.⁴⁰ Thanks to this single precious example that makes use of a system of abbreviations to track every recipe back to its source,⁴¹ it offers us an overview of the state of art in the 11th century. In this list one may find Greek authors (Aristotle, Polemon, Galen, Dioscorides), physicians who wrote in Arabic (al-Rāzī, Yuḡannā ibn Masawayh, Yuḡannā ibn Serābīūn, al-Ṭabarī), a number of authors of books on agriculture (Greek, Indian, Persian agriculture), mythical authors (Hermes, Kimās, Mahrārīs), and names associated with still unidentified sources (Wahmātūs, Isqrādiūs).

One of the manuscript witnesses, namely Wien 1460, brings into the discussion the ideas of ‘*aḡīb* and ‘*ḡarīb*. In this manuscript several glosses and emendations have been added by a different hand than that of the copyist.⁴² This active reader

³⁸ For the titles of the manuscripts used for the *Kitāb al-Muḡarrabāt* edition, see Álvarez Millán 1994, 67–76.

³⁹ For this manuscript see Witkam 2007, 297.

⁴⁰ Among the manuscripts available to me, only Bodl. M.Marsh. 520 and Cambr. Or. 1418 lack this list of abbreviations. The critical analysis of the materials is not yet finished. In any case, the tendency to simplify while copying might point to the voluntary omission of a complex system of reference, which was not always fully understood by the copyist of Berlin 6166 either.

⁴¹ On the abbreviations in Islamic manuscripts, see Rosenthal 1947, 35–37 and Gacek 2009, 2–6. Thus far, almost nothing has been said about abbreviations in scientific literature.

⁴² The glosses may be attributed to one of the two physicians, who wrote an ownership statement in the first blank folio.

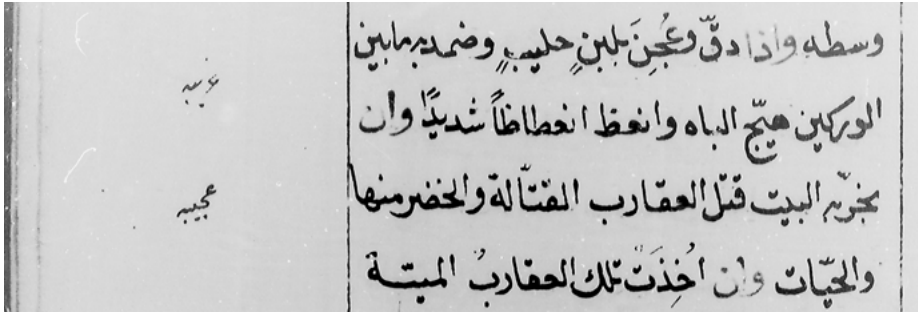


Fig. 1: Wien 1460. f. 9r, the comments *ġarībah* and *ʿajībah* in margin, respectively on a recipe to increase sexual desire and on a fumigation to kill scorpions and snakes.

comments upon the recipes, adding in the margins these two expressions, usually related to literature rather than to medicine.⁴³ They express two different kinds of amazement: *ʿajīb* is an astonishment caused by the observer’s occasional and variable lack of knowledge and ignorance of the causes, whereas *ġarīb* represents a type of astonishment that is characterized by a total disconnect between the state of affairs described in the text and the reader’s knowledge of the material world.⁴⁴ These comments in the margins may hint at a literary connotation perceived or attached to these materials, and it is of crucial importance to inquire when and how this perception might have spread among the readership.

4.2 ʿĪsā ibn ʿAlī and his *Manāfiʿ al-Ḥayawān*

The case of ʿĪsā ibn ʿAlī reveals another possible form of authorship. He served as personal physician to the caliph al-Muʿtamid (870–892),⁴⁵ and the Arabic sources unanimously present him as one of the most brilliant students of Ḥunayn ibn Isḥāq. He is recognised as the author of a book on the properties of animals. Under these circumstances, we might expect his authorship to be a strong and prestigious one.

⁴³ Cfr. EI2 1,203–204.

⁴⁴ Cfr. Fahd 1978, 118–119. “merveilleux ordinaire: il exprime l’incertitude de l’homme face à tout phénomène naturel [...] dont il ne saisit pas la vraie cause et dont il ignore la manière d’agir sur lui [...] le merveilleux est fonction du degré d’instruction et d’information de l’homme [...] merveilleux extraordinaire: [...] il s’applique à toute manifestation du merveilleux qui se produit rarement et qui tranche par rapport à ce qui est habituel et familier”; and Sadan 2006, 403 “This depends not only on how each individual perceives the ‘conventional’, but also on the nature of the source of astonishment. It is important to differentiate between a non-conventional or supernatural phenomenon on the one hand, and a marvelling attitude toward what are basically quite plain and ordinary matters, even according to the viewer’s concept”. The presence of such comments can be also observed in one of the manuscript of ʿĪsā ibn ʿAlī’s *Manāfiʿ*, that is *Sehid Ali Pasha 2096* (see below).

⁴⁵ Cfr. Ibn al-Nadīm 1970, II 699; Ibn al-Qifṭī 1903, 237; Ibn Abī Uṣaybiʿa 1884, 203.

However, ʿĪsā ibn ʿAlī is almost lost to oblivion, and his name remains confined to the manuscript tradition of his work, which has evolved with little regard to his initial authority. His demise as an author is partly due to the confusion of ʿĪsā ibn ʿAlī with the oculist ʿAlī ibn ʿĪsā, who lived more than one century later. Moreover, the quick unfolding of the golden age of Arabic medicine might have overshadowed him. The result of this is a fluid textual tradition for his work on the useful properties of the animal parts. Taking the recipe as the basic unit of the text structure definitely helps to track processes of selection and the addition of materials. The same can be said for the chapters as well. Each chapter is devoted to a single animal, so it would have been easy to interpolate an entirely new one, as long as it were inserted in the proper place.⁴⁶ Just to give a quantitative idea of the amount of variation, the shortest attested version includes forty chapters, while the longest contains eighty-six.

Ibn an-Nadīm, almost contemporary with ʿĪsā ibn ʿAlī, gives us the title under which the book circulated in the 10th century: *Kitāb Manāfiʿ allatī tustafādu min Aʿdāʾ al-Ḥayawān* ('Book of Useful Properties obtained from the Parts of Animals'). Nevertheless, the manuscript tradition presents quite a variety of titles:⁴⁷

- Berlin 6240: carpet front page with the name of the author, *ʿĪsā ibn ʿAlī al-Mutaṭabbib* (the medical practitioner)
- Sehid Ali Pasha 2096: *Kitāb Mağmuʿ al-Ḥawāṣṣ min Aʿdāʾ al-Ḥayawānāt*
- Gotha 67/2: *Kitāb Manāfiʿ al-Ḥayawān*
- Wien 1481/2: *Kitāb Manāfiʿ al-Ḥayawānāt*
- Leipzig 770: *Durra al-Ġawāṣṣʿalā Manāfiʿ al-Ḥawāṣṣ* (Pearl of the Diver on the useful aspects of the occult properties)
- Cairo, *Ṭibb Taymūr* 20013: *Durra al-Ġawāṣṣʿalā Manāfiʿ al-Ḥawāṣṣ*

The manuscript tradition of ʿĪsā ibn ʿAlī's work on properties also gives some clues about the evolution of monographic works on this topic. The structure of the book probably appeared at times to be inadequate, and made searching for specific entries difficult. Since each chapter is devoted to a single animal, if one wanted to look for a recipe against a particular illness, then the only possibility would have been to go through the entire text. The first clue about this inadequacy may be found in the glosses added in the margins. For example, Gotha 67/2 shows the systematic presence of marginal glosses indicating the illness to be cured. The same thing happens in Leipzig 770, but in Leipzig 770 and in Cairo 20013 something else seems to be going on as well. The text of the *Manāfiʿ* is followed by

⁴⁶ A sketchy kind of systematic order can be inferred from the sequence of the chapters: the first entry is 'man', followed by predatory animals, wild animals, mounts and beasts of burden, smaller animals, birds, insects, and fish.

⁴⁷ The list includes only the manuscripts that were concretely available to prepare a critical edition of the text for my PhD; for the list of the theoretically extant manuscripts, see Ullmann 1972, 21–22.



Fig. 2: Gotha 67/2, top of ff. 44v–45r. Circular orientation of the glosses on the margins.



Fig. 3: Leipzig 770, top of ff. 15v–16r, here the glosses are written in black and red ink.

another one, where the recipes are re-ordered by illness. This second text included in the same manuscript does not simply rearrange the recipes of the first one, however. It adds new material and mentions different sources. So, these two cases of multiple-text manuscripts and the system of marginal glosses are clues as to the concrete measures that were adopted in order to overcome the less amenable aspects of its textual structure.

4.3 How many books on the properties of stone are in the manuscript Paris Ar. 2775?

The manuscript catalogued as Arabe 2775 in Paris is a multiple text manuscript. It includes different kinds of texts: some on astrological mineralogy (that is, the relation between a stone and a planet) with the practical aim of engraving the stone for a signet ring that was to be worn as talisman. Another group of seven stones is categorized on the basis of the colours, while other texts focus on the occult properties of the stones. All the texts that include detailed descriptions of the image to be engraved on a stone as a talisman are also illustrated. These illustrations seem to have had a strong connection with the actual realization of the talismans and the activity of craftsmen. A detailed list of the manuscript's contents may give some idea of its complexity:

1. (1r–75v) *al-Tifašī, Kitāb fī Khawāṣṣ al-Jawāhir wa-l-Aḥjār* ('Book on the Occult Properties of Gems and Stones', also translated as 'Best Thoughts on the Best of Stones')⁴⁸
2. (76r–89v) *Ḥawāṣṣ al-Aḥḡār li-Ḥunayn ibn Ishāq* ('Occult Properties of the Stones' of Ḥunayn ibn Ishāq, illustrated)
3. (90r–101r) Same text, without incipit and explicit (illustrated)
4. (101v) Library's description in French
5. (102r–112v) *Kitāb Ḥawāṣṣ al-Aḡār wa-Manāfi'ha wa-ma yunqaṣu 'alayha min al-Ṭilasmāt li-'Uṭārid ibn Muḥammad* ('The Book of the Occult Properties of Stones, their useful properties and the talisman that can be engraved on them of 'Uṭārid son of Muḥammad', illustrated)
6. (112v–114r) fragment of the same text (illustrated)
7. (114r–116v) *Kitāb al-Aḡār al-Sabi'a*, ('The Book of the Seven Stones', organized on the basis of their colours.
8. (116v–121v) *Ṣifat Aḡār al-Kawākib al-Sabi'a wa-Nuqūsiha* ('Description of the stones associated to celestial bodies and their engravings', illustrated)
9. (121v–123v) List of stones with Greek names and the connection between planets and some particular stones (illustrated)
10. (123v–127r) fragment of the *Kitāb al-Aḡār wa-l-Fuṣūṣ li-'Uṭārid Muḥammad*, see n.5 (illustrated)
11. (127r–131r) *Kitāb Aūḡāyki fī al-Ṭilasmāt*, 'The *Physiologika* of the Talismans', no explicit (illustrated)
12. (131v–161v) *Risāla ba'd al-Ḥukamā' wa-l-'Ulamā' al-Qudamā' fī Ġawāhir wa-Ḥawāṣṣ* – 16 Chapters on medical and occult properties of stones
13. (161v–173v) *Qāla Hirmis fī Ġawwāb al-Aḡār wa-Ḥawāṣṣiha* (incipit: Hermes told on the Stones and their occult Properties)- mutilus.

There is much to say about this manuscript and the texts that it transmits; however, the focus here will be on the different levels of compilation offered by this case study. Let's work from the micro-level and move toward the macro-level of its compilation.

The first level of compilation deals with the material dimension of this multiple-text manuscript. In this small codex, the presence of two different codicological units, rebound together in a later moment, is made recognizable by the presence of two different systems of quire numeration. In the first unit (1r–101r) text no. 3 appears to be an addition of spare leaves to texts no. 1 and no. 2. These leaves were probably added there because they contain the same text of no. 2, but are lacking of the incipit and the explicit. Moreover, the resemblance between the lay-

⁴⁸ For the translation, see Raineri 1843 and Abul Huda 1998; no critical edition is available and the two translations have been based respectively upon a copy in the Biblioteca Medicea Laurenziana in Florence and the manuscript Ar. 2775 in Paris.

out and illustrations of no. 2 and no. 3 suggests that these two texts were close also in the phase of their material realization. The second unit (102r–173v) includes a greater number of texts, copied by different hands. Text no. 4 and no. 5 show the same situation described for no. 2 and no. 3, but it is likely that also text no. 9 belongs to the same tradition. It is noteworthy that all the short and incomplete texts are separated by formulas for the incipit and explicit, but this discontinuity is not marked in the layout. The items from no. 7 to no. 11 might have been copied from spare leaves that were too damaged to be safely included in the new binding. In both the codicological units, the work on engraved stones associated to planets is followed by the text on the seven coloured stones.⁴⁹ At least in the context of production of this very collection of texts, they were probably supposed to circulate together. But it is not the only possible combination. For example, in Aya Sofya 3610 the text on the engraved stones follows a copy of the Pseudo-Aristotle *Book of Stones*, alongside with the text on the seven coloured pearls.

To say something about the micro-level of compilation, I will focus on the structure of the text on the engraved stones associated to the seven planets. The texts labelled as no. 2, no. 3, no. 7 and no. 9 are witnesses to the same tradition, with a pseudepigraphic attribution in turn to the great translator Ḥunayn ibn Isḥāq in the first codicological unit and to 'Uṭārid (Mercury) son of Muḥammad in the second one. Here the seven planets and their spheres of influence are associated with stones, which have to be engraved along with a figural representation at a particular astrological moment, so as to obtain a powerful talisman. The engraved gems have to be mounted on the metal associated with the planets, then also supplementary inscriptions may be added on the band, and a medicinal plant can be placed under the stone. The last component is a list of ritual prescriptions to wear the stone properly. The chapters are probably the result of the combination of materials coming from different sources. For example the Hellenistic tradition of the first book of the Cyranides,⁵⁰ or materials that can be linked to the tradition of the *Ġāyat al-Ḥakīm*.⁵¹ As for the illustration, they do not seem to belong to the Hellenistic tradition, but rather show Indian iconographic motives.⁵² Though a much deeper inquiry would be needed in order to understand how the sources were used and combined (they could be even more numerous, including oral ones as well), it is evident that it is a composite compilation of several sources re-organized to fulfill new and different needs.⁵³ The case of the first book of the Cyranides offers a clear

⁴⁹ The list of seven stones organized by colour was probably inspired by Iranian models; see Ullmann 1972, 102–103.

⁵⁰ See Toral-Niehoff 2004.

⁵¹ Cfr. Pseudo-Maḡrīṭī 1933, 106–132.

⁵² See Ruska 1919 and Pingree 1989.

⁵³ Text no. 7 contains almost the same materials, but differently arranged. Namely, there are two different sections: the first lists the astrological indication about the best moment to engrave the each stone, while the second includes the description of the figural representations of planets.

example of a source which needed to be reorganized in order to make its use easier. The structure of the Greek *Cyranides* and its Arabic translation follow the Greek alphabetical order.⁵⁴ In the Arabic translation, however, this meant having to use transliterated Greek names, with all the related problems of phonetics and understanding, in order to remain in the same frame of reference. So, it does not seem too surprising that the materials underwent a process of simplification: the Greek names were translated and the materials reorganized in a new and less rigid structure, no longer conditioned by initial letters. However, the influence of the *Cyranides* emerges in the combination of engraved figural representations and medicinal plants in the talisman.

In combining these textual and codicological data it appears that both the two units and the codex itself have a precise intention behind them: to collect works on stones, their properties, and their connections with celestial objects. In that case the two major units may have circulated separately for a while, but for the moment it is not possible to say more.⁵⁵ In any case, there are already enough clues to consider this multiple-text manuscript as an important witness to the material organization of knowledge in manuscript cultures: it shows how some texts were considered close, if not contiguous, and how different texts carrying similar contents were circulating together. In other words, this multiple-text manuscript can be considered a corpus organizer, through which knowledge was arranged so as to be transmitted, leaving us with material and concrete evidence for how knowledge evolved through time.⁵⁶

5 Conclusions

In this paper I have presented a schematic and synthetic picture of an enormous and highly varied group of materials. One is stating the obvious by saying that any kind of generalization results in a compromise at the expense of a number of meaningful details. And this may sometimes turn out to be a naïve solution.

In the field of the ‘sciences of properties’ the use of the words *manāfiʿ* and *ḥawāṣṣ* is not always coherent. First of all because it is not easy to distinguish

⁵⁴ For each of the twenty four Greek letters there is a chapter in which an animal, a plant, a mineral, and an aquatic animal are listed. These four elements have to be combined in a talisman which exalts channels and strengthens their respective properties and powers. Usually, the figures of the animals have to be carved on the stones (either on the upper and lower surfaces, or in one of the surfaces and on the edge), while a leaf of the correspondent plant has to be put under the stone mounted on a signet ring.

⁵⁵ I have based my observation on a PDF black and white reproduction, and it is not to be excluded that a direct examination of the original may lead to new discoveries.

⁵⁶ For the idea of corpus organizer and the related terminological discussion see Bausi 2011.

between the two groups, and it is with the titles that this entangled mix appears to be almost inextricable. Perhaps once many more texts have been studied and are made available to a larger readership, it may be possible to get closer to the crux of the matter.

Secondly, another huge question regarding these materials deals with their fluid movement from genre to genre, and from one form of compendium to another over many centuries. To grasp how these text units or blocks were circulating would probably disclose new perspectives on these texts. For the moment, one may observe a relative stability of the contents, side by side with a constant evolution of the forms in which it was expressed.

The group of texts included in the 'science of properties' offers a particular challenge to how we understand editorial practice: one needs to take into account and convey the very peculiar features of a tradition, show the evolution of the materials during their fluid transmission, rather than trying to reconstruct an alleged original form, often losing thereby a lot of the information transmitted by the variety and variability of the material.

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Florentina Badalanova Geller

Between Demonology and Hagiology

The Slavonic Rendering of the Semitic Magical *Historiola* of the Child-Stealing Witch

на Цвети за Цветница

Abstract: This contribution traces the history of some basic narrative elements of the *historiola* about the child-stealing demon, as presented in Jewish Aramaic amulets (from Palestine) and magic/incantation bowls (from Mesopotamia), as well as in the *Alphabetum Siracidis* (in which a reference to the Lilith legend is made). The names of the three angels of healing – Senoy, Sansenoy and Semangelof – are also provided in this cluster of esoteric texts. This *historiola* is attested not only in Semitic (Hebrew, Aramaic, late Syriac, Ethiopic and Arabic) sources, but also in Greek, Coptic, Armenian, Romanian, and Slavonic medieval literature, where the name of the holy protagonist fighting against the fiend is Sisinnius (a “domesticated” abbreviation of the above listed Semitic angelonyms). The names of the child-stealing demon (and/or that of the saint-warrior counteracting her) were frequently used as amulets or talismans for the protection of infants and lying-in women and this story provides an etiology for that practice. I focus on a previously unpublished seventeenth-century Serbian version, known as “The Prayer of Saints Sisin, Isidore, Simeon and Theodor”. The paper concludes with an edition of this text as well as a number of oral versions of the same story that were recorded in Bulgaria in the second half of the 20th century. The Slavonic apocryphal and folklore redactions of the *historiola* of the child-stealing demon are considered as distant witnesses to an original Semitic story composed in an Hellenistic Jewish environment; the incantation later became Christianized, while its Semitic (Aramaic) counterpart continued – quite independently – its life in later Jewish magic.

1 Historiographical overview

1.1 Moses Gaster on the Semitic Urtext in Slavonic tradition

In 1900, Rabbi Moses Gaster, the Haham of the Sephardi Jewish Community in Britain, drew attention to Slavonic, Romanian and Greek parallels to Semitic (actually Aramaic) charms against the child-stealing witch and highlighted that they were widely attested among Christian communities in the Balkans in both oral and written forms.¹ The written witnesses frequently begin with an instructive rubric recom-

1 Cf. Gaster 1900, 133–162.

mending that the object on which the chant is inscribed “is to be placed in the cradle of the child and then the Devil will not come near it”.² This detail indicates that the manuscripts containing the incantation had a pragmatic function: they were used as protective amulets and talismans.³ Gaster further emphasized that the contents of the written accounts of the charm are “almost identical” with the folklore invocations and spells, while the names “differ very considerably, and in some they have a decidedly Slavonic form”.⁴ Gaster also implied that the oral renditions of this type of incantations must have originated in written apocryphal heritage, with the Romanian corpus “being merely a translation” of the Slavonic.⁵ As for the Slavonic witnesses, he identifies them as offshoots of defensive magical incantations deriving from a Greek protograph.⁶ Born in Romania and fluent in Romanian, M. Gaster was well acquainted with indigenous folklore tradition and apocryphal literature, but he also showed remarkable knowledge of Slavonic material and was the first to classify the Orthodox Christian charms against the child-stealing witch. He divided them into two major categories, represented by shorter and longer recensions. Characteristic for the first type (designated by him as *Avestitsa*)⁷ is that the pursuer of the “unclean” evil spirit (who intends to steal the new-born Child of the Virgin Mary) is Archangel Michael. For the purposes of the current discussion, we

2 *Ibid.*, 139.

3 As pointed out by L. Kovačević, it is recommended that women in whose households infants suffer sudden death should attach such amulets (often prepared by the local priests) to their clothing; alternatively, they should place them next to the child (Kovačević 1878, 283). One such scroll-amulet containing the ‘Sisinnius prayer’ (dated to the end of the 17th – beginning of the 18th century) was described and transcribed by Iv. Duichev (1971, 157–166, esp. 161–163). Written on a band of paper glued on cloth (thus forming a scroll 5.20 meters long and 18 cm wide), it begins with the recommendation that it was the Lord God himself who endorsed its protective functions: those who attach it to their clothes, or keep it in their homes, will not be affected by the Devil and evil people; those who read it three times every day will be saved from the Eternal Sorrow (Duichev 1971, 158). For the role of the ‘Sisinnius prayers’ in folk medicine and magic, see also the discussion in Pantelić 1973, Panaiotov 2003, 247.

4 Cf. Gaster 1900, 138.

5 *Ibid.*, 139; see also Veselovskii 1883, 40–53, 428–430.

6 Cf. Gaster 1900, 142–143.

7 The Romanian demononym *Avestitsa* derives from the Slavonic nouns denoting ‘witch’ (e.g. Bulgarian *вещица*, Serbian *вештица*, etc.); they are etymologically related to the Church Slavonic nouns *вѣщница* (= *мага*), *вѣдѣць* / *вѣдьць* / *вѣдѣтель* (Gr. γνώστης), *вѣщець* / *вѣштьць* (Gr. μάγος), *вѣдь* / *вѣдѣньє* / *вѣдѣнїє* ‘knowledge’ (rendering Gr. γνώσις, ἐπιστήμη, δόγμα, τρόπος); the verb *вѣдѣти* (‘to know’) and the adjective *вѣщъ* (‘wise’, peritus) belong to the same semantic cluster. Consult in this connection I. Sreznevskii’s *Materials for the Dictionary of the Old Russian Language According to the Written Sources* (1893 (1), 478–482, 502–503), the Russian edition of M. Vasmer’s *Russisches Etymologisches Wörterbuch* (Fasmer 1986 (I), 283, 309), *The Dictionary of the Old Bulgarian Language* (under the editorship of D. Ivanova-Mircheva 1999, 319–321), and A. Bonchev’s *Dictionary of Church Slavonic Language* (2002, 123, 125).

reproduce below one such folk incantation/conjuration “collected from the mouth of the peasants in Roumania”.⁸ The charm runs thus:

The Archangel Michael, descending on the Mount of Olives, met Avezuha, the wing of Satan, and she was dreadful to behold; the hair of her head was hanging down to the ground, her eyes were like stars, her hands of iron, the nails of her hands and feet were like sickles, and from her mouth came forth a flame of fire.⁹ The Archangel Michael, Lord over the Heavenly hosts, said unto her, ‘Whence dost thou come, thou unclean Spirit, and whither art thou going?’ ‘I am going to Bethlehem in Judea, for I have heard that Jesus Christ is going to be born of his His Virgin Mother Maria, and I am going to hurt her.’ Whereupon the Archangel Michael took hold of the hair of her head, fastened an iron chain around her,¹⁰ stuck his sword into her side, and began to beat her terribly, in order to make her tell him all her secret arts. She began and said, ‘I change myself into a dog, a cat, a fly, a spider, a raven, an evil-looking girl, and thus enter into the houses of the people and hurt the women and bring trouble upon the children, and I bring changelings, and I have nineteen names. First, Vestitza; second, Novadaria; third, Valnomia; fourth, Sina; fifth, Nicozda; sixth, Avezuha; seventh, Scorcoila; eighth, Tiha; ninth, Miha; tenth, Grompa; eleventh, Slalo; twelfth, Necausa; thirteenth, Hatav; fourteenth, Hulila; fifteenth, Huva; sixteenth, Ghiana; seventeenth, Gluviana; eighteenth, Prava; nineteenth, Samca; and wherever these names will be found written I shall not be able to approach that house within a distance of three thousand steps.’ And the Archangel Michael, the Lord over the Heavenly Hosts said unto her, ‘I tell thee, and I conjure thee, that thou shalt have neither the power to approach the house of X the servant of the Lord, nor to hurt his property, his flocks, or anything that belongs to him.’¹¹ Thou shalt go to the desolate mountains where no one lives, there shalt thou abide. Amen.¹²

In the second type of charms against the child-stealing witch (designated as the *Sisoe-type*), the role of the protagonist is not played by the Archangel Michael but

8 Gaster 1900, 132.

9 A strikingly similar formula constructed on ‘iron imagery’ (as iron itself is considered to be an apotropaic metal, along with bronze and lead) occurs in the description of a male demon in an Aramaic magic bowl, whose “temples are an anvil of iron, his arms are two hammers, his chest is the chest of an evil man, his belly is a lake without canals, his back is alum, his legs are legs of brass and iron”, see Naveh & Shaked 1985, 199.

10 For the iconography of a demoness with a chain around her neck, as well as shackles binding her ankles (as attested in Aramaic magic bowls), see Levene 2003, 180.

11 From the perspective of structural typology, the attestation of such a formula (e.g. “I conjure you, that you will have neither the power to approach the house of X the servant of the Lord, nor to hurt his property, his flocks, or anything that belongs to him”) in Romanian charms is symptomatic. In fact, such statements are commonplace in Aramaic magic bowls; see for instance the text published in Naveh & Shaked 1985, 181, in which the client calls for protection “to his house and the members of his house, to his property and to his cattle, and to the body [...]”. Another bowl reads, “sealed and counter-sealed are the house, dwelling, possessions, sons, daughters, cattle, foetus, seed and soul of (the client)” (Levene 2003, 108–109). However, by acknowledging this type of common features between the Aramaic and Romanian magic texts I am not suggesting that the latter are direct descendants of the former; rather, I am suggesting that they share some common structural patterns and idioms.

12 Gaster 1900, 132–133.

by Saint Sisoe. In contrast to the first (i.e. the *Avestitsa-type*), the targeted victim of the Devil is not the Virgin Mary, but the saint's sister, whose name is Melentia (var. Meletia, Melitena, Melentina, etc.). As an example of the *Sisoe type* of the written charm, Gaster provides the text of a lengthy historiola (entitled by the copyist "The prayer of the Holy Sisoe for the little children who are killed by the Devil") from a manuscript-amulet dated by him to the middle of the 18th century. The storyline unfolds according to the following scheme: three saints-warriors, among them Sisoe, had waged successful wars in Arabian lands. Meanwhile, Sisoe's sister Meletia had given birth to five children, whom the Devil had stolen and swallowed. While pregnant with her sixth child, Meletia, wary of the Devil, runs away from her former abode and reaches the seashore, where she finds a cave of lead with doors of lead; having prepared food for one year, she hides inside it and prays to God for help and protection against the Devil. God listens to her prayer and sends one of his angels to her brother Sisoe, ordering him to go "with fear of God against the Devil", who had swallowed his five nephews. The saint, however, sets off on a hunting expedition, but is caught by a terrible storm in a forest, and almost by accident arrives at the cave in which Meletia and the new-born infant are hiding. Initially Meletia is reluctant to open the door, since she is frightened that the Devil may come and steal her child, "as forty days have not yet passed since its birth", but Sisoe informs her that he is sent by God to fight the Adversary. Meletia lets her brother in, but the Devil changed himself into a millet-grain and hid inside the shoe of the saint's horse, and once inside snatched the child away. Sisoe mounts his horse and begins pursuing the Devil; on the way he encounters a willow tree and asks it about the whereabouts of the Devil; although the tree has seen the Adversary, it fails to inform the saint, who curses it to "only bloom and never bear fruit". The same happens to the dishonest briar, which is also cursed by Sisoe to have its roots where its branches ought to be; then the saint encounters a plane-tree which he blesses, as it informs him about the whereabouts of the Devil, whom it had not seen, but whose song it overheard. Finally, the saint blesses the olive-tree, which tells him that it has seen the Devil plunging into the sea, and having prayed to the Lord, the saint throws his hook into the waters, catches the Devil and drags him onto land. Sisoe then orders him to return the children of his sister and beats him with a fiery sword. The Devil replies that he will bring back the saint's nephews only when the saint vomits up the milk which he sucked from his mother's breast; Sisoe does this and the Devil brings back "all six children hale and hearty, and not hurt in the least". The saint lets the Devil free only when the latter swears "by the Lord, who created heaven and earth, that wherever he would see the name of the book of the Holy Sisoe he would have no power to harm or hurt the people".

As briefly mentioned above, Gaster was also the first to identify the etiology of the Romanian and Slavonic charms against the child-stealing witch, stating that they are based upon Greek texts in which the role of the antagonist is played by

the demonic character “which goes by the name of *Gelu* or *Geloo*”;¹³ in order to support his thesis, he further supplies as evidence two Greek accounts.

The first legend (defined by Gaster as the longer recension) concerns the contest between “the saints of the Lord, Sisynios and Synidores”¹⁴ and “the accursed *Gylo*” – a female spirit¹⁵ who snatched the children of their sister Melitena.¹⁶ Incorporated into the storyline are the familiar motifs of the pursuit of the demon by the saint(s), during which the encounter with the cursed and the blessed trees takes place, followed by the motif of the regurgitated mother’s milk and the safe return of the snatched infants. However, there are also some idiosyncratic topics included in the narrative. These include the metamorphosis of the hunted demon into a fish, a swallow, and goat’s hair hidden in the King’s beard; furthermore, after her defeat “the accursed *Gylo*” negotiates with her captors the conditions of her release and confesses that she will no longer be able to enter people’s homes and harm their households if they possess an amulet-prayer containing her “twelve and a half” names:

She said: “My first name is Gylo, the second Morrha, the third Byza, the fourth Marmaro, the fifth Betasia, the sixth Balagia, the seventh Bordona, the eight Apleto, the ninth Chomodracae-na, the tenth Anabardalea, the eleventh Psychoanaspatria, the twelfth Paedopnictria, the half Strigla.”¹⁷

The charm ends with an appeal to Holy Sisynios and Synidores (complemented by an elaborate list of names of additional saints-protagonists) to protect the client

13 *Ibid.*, 142–143; see also in this connection the discussion in Greenfield 1989 and Chekha 2014.

14 As pointed out by Naveh and Shaked, although in the Greek account provided by Gaster there are only two helpers, the number of protagonists varies in the different versions of the historiola; thus in the Greek story reproduced by them (after Perdrizet 1985, 112–115), the brothers of Meletinē are three: Saint Sisynios, Sinēs and Sēnodōros; see *ibid.*, 115, n. 6.

15 The literature on the demonic figure of Gello/Gylo is vast, since the epistemological models applied by different scholars to analyze it vary, e.g. the observations of Spier (1993, 34), who suggests that “the name and belief are probably of Babylonian derivation” (33–39, esp. 34) and Burkert, who highlights the Sumerian-Akkadian Gallu-demon and advocates the hypothesis that the Gello phenomenon represents “a borrowing from Mesopotamia” (1997, 82–83). However, evidence based on the name alone is insufficient, since the two demons, Gello and Gallu, do not resemble each other in their essential characters or functions; for instance, the Gallu-demon is neither a female demon nor a child-stealer, but simply a netherworld gendarme (see *Chicago Assyrian Dictionary* G, 19). See also the discussion in Johnston 2001, 364, 380–381.

16 Naveh and Shaked are tentatively suggesting a possible “zoological association” in the Greek renditions of this magical historiola: “Meletine may be connected with the Greek word for a bee (μέλιττα). The fiend has a strong association with a fly (Greek μύια), which is both the form it assumes when it entered with the brothers’ horses and one of its names”; see *ibid.*, 115, n. 7.

17 Gaster 1900, 145; for the motif of the “twelve and a half” names of “the abominable Gyllou”, see the Greek text reproduced (after Perdrizet) by Naveh & Shaked 1985, 112–115.

“who holds this amulet”, together with his entire household, from “every unclean spirit, every earthly and airy demon, and the abominable Gylo”.¹⁸

Omitted in the shorter recension of the Greek version of the charm against the child-stealing witch, however, is the list of the names of the demon; in fact, she is nameless, despite her testimony in the epilogue in which she promises that “wherever this amulet (Phylacterium) be found I will not go, and wherever this will be read I will not enter, but run away a distance of sixty miles”, and “whoever will write down my twelve names, his house will I not hurt, nor will I enter his abode, nor harm his cattle, nor have power over his household”.¹⁹ As in the longer recension, the names of the saints-protagonists are Sisynne/Sisynnios and Sisynodoros/Synidores. Still, it is the Holy Sisynnios who adjures her “by the name of the Lord,” and by a cluster of saints, the list of whose names differs significantly from that found in the longer recension (see above).

Having examined the contents of the Romanian, Slavonic and Greek versions of the charm, Gaster points out, that “there are a number of parallels in other literatures much older than the Slavonic and even the Greek”, and refers to Hebrew tradition, and especially to the Lilith legend; he further clarifies that the object on which it is written is “used as an amulet in the room where the child is born, hanging round the walls”,²⁰ while the text itself functions as a verbal conjuration. As noted by Gaster, the Hebrew text shows a remarkable similarity with its Romanian and Slavonic counterparts. In the Hebrew version, however, the protagonist is the Prophet Elijah, while the antagonist is Lilith. Described in the incipit of the charm is the encounter between the Prophet Elijah and Lilith (who was traveling with her host); it is followed by the formulaic piece of dialogue: “Where are you going, you unclean host?” “My Lord Elijah, I am going to that woman who has given birth to a child, to give her the sleep of death, to take her new-born child, to drink its blood, to suck the marrow of its bones,” etc. When warned by the Prophet that he will conjure her with “a great excommunication” that she will be “changed into a dumb stone by the will of God”, Lilith swears “by the name of God” that she will avoid the roads leading to the house of a lying-in woman and will not harm her child, should the amulet containing her names be hung up on the walls. She furthermore reveals to the Prophet the list of her secret names: “Satrina, Lilith, Abito, Amizo, Izorpo, Kokos, Odam, Ita, Podo, Eilo, Patrota, Abeko, Kea, Kali, Batha, Talto, and Partasah”.²¹ Finally, Gaster brings to the discussion the Syriac version, and emphasized that, regardless of whether they are Jewish (Hebrew, Aramaic) or Christian (Greek, Slavonic, Romanian), the lists of demonic names bring about protection against the evil spirits; their demonic power is compromised once their identities are known.

¹⁸ Gaster 1900, 146.

¹⁹ *Ibid*, 148.

²⁰ *Ibid*, 149.

²¹ *Ibid*, 149.

1.2 James Montgomery's contribution

Thirteen years after its publication, Gaster's pioneering work was highlighted by James Montgomery in his celebrated *Aramaic Incantation Texts from Nippur*, in the comments on text No. 42 from the archival collection of the University Museum.²² In fact, Montgomery did not include this incantation in his Glossaries, since the bowl containing the inscription was no longer found in the Museum at the time when he produced his catalogue; instead, "on the hypothesis that the original text was once in the Museum",²³ he published the copy of the transcription prepared earlier by Richard Gottheil.²⁴ Although Montgomery was somewhat puzzled by the text, since "it differed so radically from the other inscriptions", he "ventured" to publish his colleague's copy, "and do so the more readily because of its interesting character". Most importantly, as highlighted by Montgomery, "it contains a form of the Lilith legend, widespread in folklore, and a bowl would have been a perfectly proper place for a text of this prophylactic character";²⁵ furthermore he points out

²² Cf. Montgomery 1913, 258–264.

²³ *Ibid.*, 258.

²⁴ The text of the incantation in question runs as follows:

Shaddai // Sanui Sansannui Semniglah Adam YHWH Kadmon Life Lilith // In the name of Y" the God of Israel who besits the cherubs, whose name is living and enduring forever. Elija the prophet was walking in the road and he met the wicked Lilith and all her band. He said to her, "Where art thou going, Foul one and Spirit of foulness, with all thy foul band walking along?" And she answered and said to him: "My lord Elija, I am going to the house of the woman in childbirth who is in pangs (?), of So-and-so daughter of Such-a-one, to give her the sleep of death and to take the child she is bearing, to suck his blood and to suck the marrow of his bones and to devour his flesh." And said Elija the prophet – blessed his name! – "With a ban from the Name – bless it – shalt thou be restrained and like a stone shalt thou be!" And she answered and said to him: "For the sake of Y" postpone the ban and I will flee, and will swear to thee in the name of Y" God of Israel that I will let go this business in the case of this woman in childbirth and the child to be born to her and every inmate so as do no injury. And every time that they repeat or I see my names written, it will not be in the power of me or of all my band to do evil or harm. And these are my names: Lilith, Abitar (Abito?), Abikar (Abiko?), Amorpho, Hakaš, Odam, Kephido, Ailo, Matrota, Abnukta, Šatriha, Kali, Batzeh, Taltui, Kitša." And Elija answered and said to her: "Lo, I adjure thee and all thy band, in the name of Y" God of Israel, by gematria 613, Abraham, Isaac and Jacob, and in the name of his holy Shekina, and in the name of the ten holy Seraphs, the Wheels and the holy Beasts and the Ten Books of the Law, and by the might of the God of Hosts, blessed is he! – that thou come not, thou nor thy band to injure this woman or the child she is bearing, nor to drink his blood nor to suck the marrow of his bones nor to devour his flesh, nor to touch them neither in their 256 limbs nor in their 365 ligaments and veins, even as she is (= thou art?) not able to count the number of the stars of heaven nor to dry up the water of the sea. In the name of: 'Hasdiel Šamriel has rent Satan'" (Montgomery 1913, 259–260).

²⁵ *Ibid.*, 258, but Naveh & Shaked (1985, 118) doubt the antiquity of Montgomery's unprovenanced-text. However, one feature of the text certainly looks archaic, namely the reference to the woman victim having 256 bones and 365 ligaments; the former figure may be erroneous for 252 female bones. This tradition harks back to a Talmudic dictum that the body has 248 bones and 365 sinews,

that “similar charms against Lilith are to be found at the end of the *Sefer Raziel*” and other related sources.²⁶

The template of the narrative about the encounter between the Prophet Elijah and the wicked Lilith (accompanied by her band of demons) is simple;²⁷ the demon intends to harm a woman in childbirth by giving her the sleep of death, and to deprive her of her child by devouring its flesh and sucking its blood; Elijah adjures Lilith and her band, by forcing her to reveal to him her names, thus preventing her from killing infants and their mothers. According to their contract, if Lilith’s names are invoked in a certain household, she will have no power to kill children and women in childbirth there. In this way the list of her demonic names serves as an amulet against the fiend herself. The narrative from Montgomery’s text about the contract between Lilith and Elijah is tentatively related to a story in the Talmud according to which Lilith is only allowed to cause harm on Wednesday and Satur-

which add up to 613, equal to the number of Mosaic commandments in the Pentateuch; this relates to a Talmudic account of the first-century CE Palestinian sage Rabbi Ishmael, whose students dissected the body of a prostitute and were surprised to discover that she had 252 bones (rather than 248), the problem being solved by the explanation that a woman has four additional bones (doors and hinges) in her vagina (Babylonian Talmud *Bekorot* 45a). The theme is fairly common in Aramaic magic bowls, which also distinguish between 252 bones for females and 248 bones in males; see Shaked, Ford & Bhayro 2013, 55. See also two magic bowls published by Dan Levene in which a male client is to be protected by the spell in all his 248 limbs, and alternatively the demon is forbidden from harming a female client in all her 252 limbs (Levene 2003, 46, 116).

26 Montgomery 1913, 259.

27 A somewhat abbreviated version of the charm published by Montgomery is presented in the eighteenth-century Jewish amulet from the collection of *The Museum of the History of the Jews in Russia* (Moscow); the amulet is of German provenance, and is prepared for a girl. Provided below is the author’s translation of the Russian version of the text, as published by M. Kaspina (2014, 49–50):

In the name of the Lord God of Israel who is seated on the Cherubim, His name is great and awesome. Elijah the Prophet – may his memory be blessed – went along the road and met Lilith and all her band; and he said to Lilith the sinner, “You, unclean! You, the spirit of uncleanness, and all your impious band, where are you going?” She replied, saying, “Master Elijah, I am going to the woman who has just delivered, whose name is So-and-so, to give her the sleep of death and take away her newborn daughter, to drink her blood and slurp the marrow from her bones, and consume her flesh.” The Prophet Elijah – may his memory be blessed – answered her saying, “You will be stopped with a curse from the blessed Name and you will be like a stone.” She answered him and said, “In the name of God, let me go and I will run away. I swear to you in the name of the Lord, God of the hosts of Israel, to depart from all these paths leading to this woman and her newborn daughter, and every time when I hear my names, I will run away. And now I will tell you all my names and every time when they are mentioned, neither I nor my band will have any power to bring evil, to harm, and to enter the house of the lying-in woman or to cause harm to her. And here are my names: Lilith, Abitu, Abizu, Amzarko, Hekesh, Orem, Ikpodu, Ilu, Tatrota, Abunukta, Shatrana, Kalikataza, Tilatui, Piratsha.”

It is worth noting that in the versions published by Montgomery (1913) and Kaspina (2014), there are some similarities between the names of Lilith.

day nights; in both cases there is a reference to some kind of deal or contract with the demon allowing her to cause harm only under certain circumstances.²⁸

1.3 Joseph Naveh and Shaul Shaked's observations

Almost a century after Gaster and Montgomery, Joseph Naveh and Shaul Shaked do an excellent job of tracing the early history of the basic elements of the story of the child-stealing witch, as presented in Aramaic amulets (from Palestine)²⁹ and

28 The historiola of Agrat bat Mahlat and her encounter with Rabbi Hanina ben Dosa is recorded in the Babylonian Talmud (*Pesachim* 112b) and is quoted in full by Shaked, Ford & Bhayro (2013, 53), because of its close affinity to Aramaic magic bowls. The story is as follows.

One should not go out alone at night on either the eve of Wednesday or on the eve of the Sabbath, because Agrat daughter of Mahlat goes out in company with 180,000 harmful angels, each of which has the authority to cause harm on their own. Originally they would be found abroad every day. On one occasion she happened to come against Rabbi Hanina ben Dosa. She said to him, "If it were not for the fact that there is a proclamation in heaven (saying): Beware of Hanina and his (knowledge of the) Torah, I would put you in danger." He said to her: "If I have a considerable position in heaven, I decree against you that you should never go through an inhabited place." She said to him, "Please give me a little respite," and he allowed her (to roam about) on the eves of the Sabbath and Wednesday.

29 See the comments on Amulet No 15 (Naveh & Shaked 1985, 104–122). The fragmentary text reads:

"Smamit gave birth to sons. [They were killed by Side]ros. She fled from h[im] . . . She stood in She built a house for herself in [She provided it with] gates of iron and she locked the gate SWNY and SWSWNY and SNYGLY knocked on We shall pass and get in [She stood] up and opened [the door] for them. There came in with [them Side]ros and killed her son."

The amulet relates that the three angels chased Sideros to the sea, to kill him, but he swears an oath and the result is that "wherever [people] mention the name of SWNY and SWSWNY and SNYGLY, I shall not [kill]" the female client of the amulet.

Two Aramaic magic bowls from Mesopotamia (roughly 6th century CE) give an equally concise account but the text is better preserved (Naveh & Shaked 1985, 189):

Smamit gave birth to twelve sons. All of them were killed by Sideros the Wicked. She got up and fled from him, and she went to a mountain, whose name is unique in the world. She performed sorceries of copper and magic acts of iron. There came S'WNY and SS'WNY and SNGRW and 'RTYQW and said to her: "Open (the door) for us." She said to them: "I shall not open (it) for you." They said: "This is a place (for us) to pass through and enter into." She stood up and opened (the door) for them. With them there came in Sideros. He killed her son and strangled him. She stood up and cried at him: "O S'WNY and SS'WNY and SNGRW and 'RTYQW! What have they done to him?" They stood up and chased him and found him in pelagos, the great sea, to kill him and strangle him. He said to them: "Let go of me, and I swear to you in the name of He 'who has measured the water in the hollow of his hand' [Is. 40: 12] that wherever the name of S'WNY and SS'WNY and SNGRW and 'RTYQW is mentioned I shall not kill or strangle the house of (the client)."

See also Finkel (1997, 21–22), for suggestions regarding Akkadian motifs in these magic bowls, in regard to the Smamit historiola.

magic/incantation bowls (from Mesopotamia).³⁰ They further emphasise that the plot is attested not only in Semitic (Hebrew, Aramaic, late Syriac, Ethiopic and Arabic) sources, but also in Greek, Coptic, Armenian, Romanian, and Slavonic medieval literature. According to Naveh and Shaked, the magical narrative originated as a Jewish Aramaic text in Palestine; later it found its way to Mesopotamia, and was copied in Aramaic magic bowls, “where a number of corruptions and perhaps some Babylonian linguistic features were introduced into the text”.³¹ The Palestinian Aramaic historiola, however, was independently adopted by Christians in Greek,³² Syriac and Ethiopic as a self-sufficient narrative. The Greek witnesses further facilitated the spread of the historiola into various other languages and cultures, including Slavonic apocryphal and folklore tradition. Naveh and Shaked mention (in a footnote)³³ that the same story of the harmful child-stealing demon is alluded to in *Alphabetum Siracidis* in relation to Lilith being Adam’s first wife (who demanded equal rights with Adam) and, when denied them, fled from her husband. Three unnamed angels are sent by God to capture and convince her to return to her spouse, but she refuses. Even when they threaten to drown her, she does not consent. Lilith claims that her divine purpose is to punish Adam’s offspring, males in their 7th day and girls in their 20th day. However, if she sees the three angelic names in an amulet, she will restrain herself from doing harm. So she made a deal to protect her vindictive cause, even agreeing that one hundred of her demonic children would die each day.

Ben Sira also gives the names of these angels of healing – Senoy, Sansenoy and Semangelof, in his narrative about the illness of the young son of King Nebuchadnezzar. Having been summoned by the King to heal the young prince, Ben Sira writes an amulet invoking the names of these three angels of healing. These names hence became standard features of childbirth amulets. It seems obvious that the Ben Sira amulet for the sick prince was based upon an earlier existing narrative about Lilith and her encounter with the three angels and her subsequent surrender to them. These narratives belong to the same tradition. Then again, the three formulaic names Senoy, Sansenoy and Semangelof of Ben Sira (rendered as Sanui, Sansanui and Semniglaph in Montgomery’s text and Naveh-Shaked Amulet No. 15), are clearly related to the name of Saint Sisinnius – the holy protagonist of the Greek, Slavonic, and Romanian accounts of the child-stealing witch; however, while in Ben Sira and Aramaic magic bowls the protagonists are angels, in Christian texts they are described as saints.

30 See the comments on Bowls 12a and 12b (Naveh & Shaked 1985, 190–197).

31 Cf. Naveh & Shaked 1985, 120.

32 Its domestication within the Greek obstetric and neonatal magic and medicinal lore was most probably facilitated by the indigenous tradition related to the child-killing demons Gyllo/Gello, Mormo and Lamia; for Gyllo in the Graeco-Roman Classical and Hellenistic “physical, moral and social *kosmoi*”, and within Byzantine religious beliefs, see Johnston 2001.

33 *Ibid.*, 118 n. 17. See also the discussion in Yassif 1982, 56–57.

2 The Slavonic phase

Slavonic magic texts do not remember Lilith. The historiola of the child-stealing witch, however, is well attested in both oral and written versions. While the recordings of oral renditions are rather scarce, the written versions are found in various manuscripts circulating in the Byzantine Commonwealth; these can be copied with either Cyrillic, or Glagolitic characters. However, the survey of the existing database³⁴ shows that the charms against the child-stealing witch are attested only in South-Slavonic and Balkan (Bulgarian, Serbian, Croatian and Romanian) sources, but not in East-Slavonic (Russian, Belorussian and Ukrainian) tradition.³⁵ In some of the texts the major protagonist is the rider-saint called Sisinnius (var. Sisin, Sisoï, etc.), a mighty warrior defeating the demon (often identified as the Devil himself) who harmed the newborn sons of his sister Melentia (var. Meletia, Melitena, Melentina, etc.). He is envisaged as a mounted horseman with all the necessary paraphernalia – a verbal portrayal which coexists with a distinctive iconographic tradition.³⁶ This class of apotropaic invocations can be designated as ‘the Sisinnius type’ (following Gaster’s taxonomy).³⁷ Along with ‘the Sisinnius type’, there exists a parallel cluster of texts in which the role of the protagonist who conjures the child-stealing demon is played by the Archangel Michael; these can be labeled as ‘the Archangel Michael type’ (*Avestitsa* in Gaster’s taxonomy).³⁸ It is suggested in the latter group of texts that, when “the Living Word of God” (that is, Jesus Christ) was born, the Archangel Michael defeated, captured and shackled the wicked demoness, who had attempted to destroy the Infant. Furthermore, in the list of her evil deeds the snatching of the newborn infants is mentioned just as one among many

34 See Iudin 1997, 109–110, 233–235, 244–245; Kliaus 1997, 148–150 (1/X.1.1/A6: Сисиниева легенда), 252 (1/XXXIV.1.2/B1: Дьявол уносит ребенка; св. Сисиний догоняет Дьявола, возвращает ребенка).

35 Among Russians, Belorussians and Ukrainians the charms about Saint Sisinnius exclusively concern the etiology of fevers and ethnomedicinal strategies of how to counteract them (Agapkina & Toporkov 2012, 84); see also the discussion below.

36 The earliest iconographic representation of the ‘Holy Rider’ St. Sisinius is the sixth-seventh-century wall painting at the Monastery of St. Apollo at Bawit (Egypt); see Maguire 2008, 57; Grotowski 2011, 129–137; Velinova 2010, 167, n. 27. See also the discussion in Spier 1993, 33–44; Ryan 1999, 246–250 and Fulghum 2001, 142–143.

37 Cf. Gaster 1900, 139–148; see also Veselovskii 1883, 40–53, 427; 1895, 226–234; 1889, 314–316; Sokolov 1888, 24–50; 1889, 339–368; Vasil’evskii 1889, 369–371; Uspenskii 1906, 78–79, Poznanskii 1912; Iatsimirskii 1921, 48–49; Duichev 1971; Pantelić 1973, 161–203; Petkanova 1978, 138–144; 1982, 313–314, 405–406; Greenfield 1989, 83–141; Spier 1993, 33–40; Radenković 1997, 158–159; Ryan 1999, 244–250; 2006, 37–58; Detelić 2001, 225–40; Gippius 2005, 136–142; Toporkov 2005, 306; 2011, 173–179; 2014, 100–102; Agapkina 2010, 681–784; Agapkina & Toporkov 2012; Velinova 2010, 164–175; Timotin 2009, 366–376; Antonov & Maizul’s 2011, 126–129, 163, 320–321; Rychkov 2014.

38 The Romanian counterpart of this type of charms is designated by Gaster as *Avestitsa* (see above).

other acts (e.g. making the fruitful trees barren, and women infertile, etc.). At the end of the apocryphal prayers of ‘the Archangel Michael type’ a list of the names of the demon is provided, with the recommendation that people should copy it and keep the manuscript-amulet in their homes, since it will protect them from misfortune and all kinds of evil spirits. Finally, there is an intermediate, miscellaneous type of apocryphal prayers against the Devil and witches, in which Saint Sisinnius and Archangel Michael, along with the Apostles Peter and Paul, the four Evangelists and other saints, are portrayed as protagonists. These charms are usually brief and have universal purposes; they function as defensive magic against all kinds of hardships and evil spirits, and protection against the child-snatching demoness is only one of them.

The survey of manuscripts containing the witnesses to either ‘the Sisinnius’, or ‘the Archangel Michael’ types of charms shows that often they are copied next to each other; this indicates that they were perceived by the medieval scribes as a single textual entity (as is the case with the amulets published by Iv. Duichev 1971, 161–163 and M. Pantelić 1973, 197–203). Still, it is possible to find such charms as autonomous constituents of larger miscellanies,³⁹ or as independently circulating and totally self-sufficient specimens of one single incantation.

To the best of my knowledge, among the earliest attestations of ‘the Sisinnius’ type of apocryphal prayers is the one discovered by Klimentina Ivanova (1994, 26–27). Dated to the 12th century, it is written on a palimpsest (fols 43b and 43a)⁴⁰ in a manuscript containing a Serbian Aprakos Gospel (13th century).⁴¹ Although some fragments of the text cannot be read due to the bad state of the manuscript (after all, this is a palimpsest!), it is clear that on the third line (on fol. 43b) a catalogue of (some demonic) names is presented, with that of *Velzevul* (Вельзѣвѣдѣль) being placed under number 14 in the list; then follows an obscure phrase which most probably suggests that *Velzevul* (that is, Beelzebub or Beel-Zebub) is “the superior of the devils” (сотонамъ наставникъ).⁴² The next phrase is perhaps the best preserved in the entire palimpsest (lines 4–6 on Fol. 43b). It reads as follows: “And Saint Sisi[n] said: ‘If you do not swear [that you will stop causing harm], I will not let you go!’ And the cursed Devil [said]: ‘By the awesome God and by His Throne ...’”; then the text breaks again, but on line 11 the name of Melentina appears, along with that of her brothers Sinador and (T)inador; one can speculate that perhaps next to them was written the name of Saint Sisinnius, the main protagonist of the story. Immediately after that a new charm/incantation begins (lines 15–33 on Fol. 43b and lines 1–3), entitled “Saint Sisin’s prayer against witches” (Мтва ѿ веѣцнцѣ]

³⁹ See for instance the text of the prayer entitled “A writ against the witch” (Записъ отъ вѣштнице), (with the Archangel Michael as the protagonist), published by Kovačević (1878, 283).

⁴⁰ The pagination of the palimpsest is in reverse order.

⁴¹ The manuscript is kept in the Library of the Patriarchate in Jerusalem (Slav No. 19).

⁴² Lit. “the superior of the satans.”

стѣго СЧСНА). It is difficult to reconstruct the opening paragraph of the charm in question, but it is clear that line 17 ends with the word “hair” (ВЛАСИ), most probably referring to one of the stock characteristics of the witches – their long unbound hair. Then the text on line 18 contains the word “answered” (ОТВЕЦА) and the phrase “sai[d], I...” (ДЕ[У]: азъ); on line 22 the word “children” (ДѢТИ) can be read, on line 23 – the neuter singular form of the adjective “true” (ИСТИНОЕ), on line 24 – “Archangel” (АРХАНГ). Lines 1–3 on fol. 43a give the name of the client (a certain George, along with that of his wife Marina and their children) who are to be protected from the witches (ИЖЕ РОДЪ ВЪЩИЦИ); the latter are not supposed “to touch” (НИЖЕ НМАТЬ ПРИКОСНОУТИ СЕ) either the client or his wife or children; furthermore, the demons are not “to touch” his livestock ([И]НЖЕ НМАТЬ ПРИ[К]ОСНОУТИ СЕ КЪ СКОТОУ ЕГО).⁴³ The text of the charm ends with the traditional stock phrase “From now until the end of times – amen” (О СЕЛѢ Н ДО ВѢКА – АМННЬ).

The richest anthology of Slavonic historiolae about the child-stealing witch is the so-called *Miscellany of Priest Dragol* (dated to the third quarter of the 13th century); significantly, four of the ‘Sisinius prayers’ come from this particular source.⁴⁴ Since these charms are studied by other scholars, I will focus on a text which has not been examined previously, a seventeenth-century incantation preserved in a manuscript currently kept in the Sofia National Library (Ms No. 631).⁴⁵ The text is entitled, “Prayer of Saints Sisin, Isidore, Simeon, and Theodor”. Although mentioned in the title and then in the opening paragraph, the three other saints listed along with Sisin as his companions disappear from the text; in fact, only Sisin remains as the male protagonist of the charm. The storyline is simple: after defeating Saracens and Ishmaelites, the saint-warrior goes to Arab lands and sets off hunting. An angel appears to him and tells him to go to his sister Melentia, who gave birth to five sons, all of which were snatched by the Devil. Sisin’s mission is to go to his sister and chase away the Devil so that he no longer harms her one remaining child. Melentia, having lost five infants, now takes precautions. She constructs a tower fortifying it with iron, lead and bronze. Naveh and Shaked are fascinated by the reference to iron in their Aramaic version of this narrative, since the name of the Devil in their amulet is Sideros (Greek for ‘iron’), and they find similar details in Ethiopic.⁴⁶ Significantly, the Slavonic story gives the name Isidore (a version of Sideros) as a protagonist and saint, but not as the demonic antagonist. Then again, in Slavonic incantations Melentia does not just use iron but all three apotropaic metals – iron, bronze, and lead. Quite intriguing in this connection is the fact that in the Aramaic magic bowls, the child’s mother Smamit practiced

⁴³ See the discussion above (note 11).

⁴⁴ See Sokolov 1888, 25–50 and Velinova 2010, 164–175.

⁴⁵ The original Church Slavonic text, with translation and commentaries, is to be found in the Appendix (see text 1 below).

⁴⁶ Naveh & Shaked 1985, 116.

defensive magic with bronze and iron on a mountain, while in the Slavonic text Melentia's place of refuge⁴⁷ is more tangible: a tower fortified by metallic armour of the amuletic metals iron, bronze and lead.⁴⁸ Being warned by a divine angel that his sister is in danger, Sisin proceeds to Melentia's tower, but he is now caught in a tempest. He asks his sister to open the door because he was suffering in the cold, without reference to any warnings about her being in danger. She initially refuses, but after her being reassured by his credentials for pursuing the Devil, she lets Sisin in. However, the Devil transforms himself into a grain of millet and hides under the horse's shoe;⁴⁹ thus he enters into Melentia's tower and the newborn infant is taken away from his mother. The warrior-saint now mounts his horse and pursues Satan. On the way, however, Sisin meets various trees (willow, bramble, sycamore, and olive). Two of the trees failed to inform him about the whereabouts of the Devil abducting the child and were cursed, while two other trees were blessed; they informed on the Devil. (This interesting detail is found in both Romanian and Slavonic⁵⁰ versions). Due to the advice from the blessed trees, Sisin learns that the child-snatching fiend (which in the current version appears to be designated as the Devil, the Mora-spirit, and a witch) has dived into the sea.⁵¹ The saint manages to catch the demon and drag him onto dry land, punish him and recover his sister's children. The Adversary admits to swallowing them, but makes an astonishing bargain with Sisin, that if the saint can regurgitate his own mother's milk, he will restore the children. Then again, in South-Slavonic tradition, according to the conventions of indigenous customary law, you swear by your mother's milk (*кълна/заклевам се в майчиното си мляко*), and this kind of oath is never to be

47 This specific detail may implicitly allude to particular childbirth rites of passage, namely the seclusion of the woman for a certain period after giving birth, and if this custom is violated, either the mother or infant will become ill.

48 The Greek text also mentions a tower, but sealed with lead, not iron. Furthermore most medieval Bulgarian amulets on which defensive charms are written, are made of lead; see the discussion in Popkonstantinov & Konstantinova 1987; Popkonstantinov 2004; 2008; 2009; 2010.

49 A similar story occurs in the Slavonic (Greek) *Apocalypse of Baruch* (3 *Baruch*), where the Devil turns himself into a worm and asks the Serpent to swallow him and sneak him into Paradise; see Gaylord 1982; Badalanova Geller 2011, 95–96.

50 In 1989, an almost identical folk historiola was recorded by my colleague Valentina Ganeva in the village Maluk Dervent; the audio-recording is stored in the Archival Collection of the Institute of Folklore of the Bulgarian Academy of Sciences (ФНАИФ 1. Б.Г. 1989, 3.2.5, text 59); see also the text published by Kuzmanova & Kotseva (1983, 202–203). A cluster of rather similar stories were recorded by the present author in some other small villages in Bulgaria, but this time it was the Virgin Mary looking for her Child, who was taken away by enemies. She had similar encounters with various trees, cursing and blessing them in the identical manner as St. Sisinnius had done in the current text. These narratives will be published in my forthcoming *Folk Bible*, but for short excerpts from such historiolae see the second part of the Appendix (below).

51 This detail is also mentioned in Aramaic amulets and magic bowls, where the three angelic protagonists (Swny, SWSwny, Snygly) chase after the demon Sideros and find him in the sea (Naveh & Shaked 1985, 105, 191).

broken. Its violation is considered to be an unpardonable sin; those who commit it are severely punished by their community. It is believed that the well-being of their immediate households is endangered, along with that of their descendants, since they will be ultimately exposed to divine wrath, retribution and vengeance. Not only are such individuals potentially subjected to severe social penalties, but they are also dishonored by and excluded from their own clan; the memory of them is erased from the annals of their family chronicles, as they bring shame on their entire lineage generations down the line.⁵² It is exactly against this particular socio-linguistic and cultural background that the subtext of the current historiola is to be examined; the motif of Sisin having to regurgitate his own mother's milk may be interpreted thus as an implicit reference to the act of pledging; the saint makes the most solemn type of vow. For those performing (or copying) the text, the symbolism of this act is transparent – a certain oath is sworn on Saint Sisin's mother's milk.

The saint then performs a miracle: he vomits up his mother's milk and the children of his sister are given back. The final outcome is that Sisin does not release the Devil until he swears not to approach places where any prayer mentioning the name of his captor is recited, and this is the common motif of many of these stories. The pattern here is what we likewise find in the *Alphabet of Ben Sira*, in which the protective names are those of the protagonist rather than the antagonists.

One further point. The Slavonic material knows yet another type of 'Sisinnius prayer',⁵³ according to which he pursues and defeats fevers,⁵⁴ either 12 or 40 or 72 in number.⁵⁵ The fevers are perceived as Herod's daughters,⁵⁶ whom the saint also

52 On the other hand, along with the idiom, "to swear by your own mother's milk" (*кълна/заклевам се в майчиното си мляко*), there also exists a related phraseological expression, "to tell/say/divulge your own mother's milk" (*казвам си майчиното мляко*), which means "to tell/reveal a secret" (usually, but not always, under duress, against one's own will); see Gerov's *Lexicon of the Bulgarian Language* (1899 (3), 74).

53 An example found in Tikhonravov's *Monuments of Proscribed Russian Literature* (1863 (2), 351–352) is among the earliest publications of this type of 'false prayers'; see also Maikov 1994 [1869], 45–52 (№ 103, № 105, № 106, № № 109–114). For a survey of folk charms and apocryphal prayers associated with the name of Saint Sisinnius as a guardian against fevers, see Iudin 1997, 109–110, 233–235, 244–245. See also Mansvetov 1881, 24–36; Ryan 2006; Toporkov 2014.

54 On the iconography of fevers in Slavonic tradition, see Golyshev 1872, 36–41; Uspenskii 1906, 78–79; Antonov & Maizul's 2011, 320–321; Toporkov 2011; Maslova 2014.

55 For a survey of the hitherto registered texts concerning the names of fevers in folk charms and apocryphal prayers, see Iudin 1997, 233–261.

56 See also the discussion in Veselovskii 1882, 217–221; 1883, 40–53, 221–223, 427–430; 1883 a, 87–88; 1886, 290–291; 1886, 288–302; 1889, 306–329. On 'the Sisinnius prayer' in Slavonic indices of prohibited books, see clause 28 in the fourteenth-century codex of the *Podogin Nomocanon* (the Pogodin Collection, № 31, the archival collection of the National Library of Russia in St. Petersburg), under the rubric concerning the decrees of the Council of Laodicea, Canon № 59 («Лаодикийского собора правило 59»):

(28) Недугъ естѣственный, егоже трясавицами именують, якоже баеть Еремія попь Болгарьскій; глаголетъ бо оканный сице, яко «Съдящу святому отцю Сисѣнью на горѣ

neutralises by recovering them from the sea and defeating them. In some cases, the figure of Sisin/Sisinnios is replaced by the Archangel Michael. The overarching narrative is that Saint Sisinnios/Sisin and/or the Archangel Michael, either single-handedly, or together, force the harmful demon to recite his or her demonic names,

Синайстѣй», и ангела Сихаила именууютъ, еже на соблазнъ мнозѣмъ. И семь трясавицъ Иродовы дщери басньствоваше, злый, иже ни евангелисти и ни единъ же отъ святыхъ седми именоваше, но едина, испросиши главу Предтечеву усѣщи, о нейже явѣ есть, яко Филипова дщи бѣ, а не Иродова. Великий же Сисѣний патрїтрїархъ Костянтина града ... (Iatsimirskii 1921, 48).

See also the banned “vernacular Psalms” («мірские псалмы») in the *Canons of the Holy Apostles* («Отъ правилъ свв. апостоль»), where the “false prayer” against shaking-fevers («ложная» молитва от трясавиц) is designated as a “yarn of the Bulgarian Priest Jeremiah” («басня Иеремиа попа Болгарскаго»):

42. О недужѣ естѣственнѣмъ, егоже именууютъ трясавица, яко баеть Иеремѣа попь Болгарскїи (вар. басни суть Иеремїа попа Болгарскаго); глаголетъ бо окаанный сый (вар. сей; онъ), яко «Сѣдѣшу святому (отцу) Сисѣнію на горѣ Синайстѣй», и ангела Сихаила именууетъ, еже есть на соблазнъ людемъ мнозѣмъ (многымъ). И (рекше) семь дщерїи Иродовы трясавицами баснословаше (вар. басньсловаше; блазньствоваше), злый, иже (вар. сих же) ни евангелисти, ни единъ же отъ святыхъ седми (седемъ) именоваше, но едина, испросиши (испросивши) главу Предтечеву ... (Iatsimirskii 1921, 48).

See also the same designation in the sixteenth-century *Suzdal' Kormchaia* [«Суздальская Кормчая»]:

29. О недуже естѣственнѣмъ, егоже именууютъ трясавица, – басни суть Иереми попа Болгарскаго; глаголетъ бо окаанный сей, яко «Сѣдѣшу святому Сисѣнію на горѣ святѣй».

44. К семуж и ангела Сихаила именууетъ, еже есть на соблазнъ людемъ мноземъ, и семь дщереи Иродовы трясавицами басньсловаша, злыи, ниже ни евангелисты, ни единъ же отъ святыхъ семь именоваше, но едина, испросиши главу Предтечеву, и отъ (sic) ней же явѣ есть, яко и та дщи Филипова, а не Иродова ... (Iatsimirskii 1921, 48).

Symptomatically, the author of the prayers against fevers was considered to be the Bulgarian Priest Jeremiah («болгарский поп Иеремиа»), who was believed to be a son and disciple of Priest Bogomil, the founder of the heresy of the Bogomils in Bulgaria; see, for instance, the following description:

24. Недугъ естественныи, еже трясавицами именууютъ: о Сисинїи и о Сихаилѣ что, – сїа солгалъ Иеремѣа попь Богумиловъ (сынъ и) ученикъ, паче же Богу не милъ ... (Iatsimirskii 1921, 48).

See also the list of prohibited books («ложных книг») from the *Kiprian Index* («Киприановский индекс»), which begins with an excerpt from the rules of the Council of Chalcedon and ends with a note about the heretics in Bulgaria:

58. и Молитвы составливая лживыя отъ трясавицы – Еремїа попа Болгарскаго басни; глаголетъ бо окаанный: «Седѣшу святому отцу Сисѣнію на горѣ Синайстѣй, и видѣ семь жонѣ исходящи отъ моря», и ангела Сихаила именууетъ ... (Iatsimirskii 1921, 49).

See also the data concerning “The Bulgarian Priest Jeremiah” (о «болгарском попе Иеремиа») in *The Book of Cyril* (Кириллова книга), dated 1644:

67. и что провъ царь дрѣго“ хѣ назваль. н то попь иеремиа болгарскїи солгалъ.

68. глѣтъ бо окаанныи сей, яко сѣдѣш людемъ н семъ дщереи иродовыхъ трясавицами басньсловаше, сынъ ... (Iatsimirskii 1921, 49).

which are to be written into apotropaic texts (very much like the Lilith narrative quoted by Montgomery). Many of the demonic names in the above-mentioned stories (such as Abutar, Abikar, Abnukta, etc.) have no apparent meaning (as in the Aramaic magic bowls, Hebrew amulets, or other esoteric texts); these could be described as glossographia. Others (such as Mora, as attested in Ms. No 631 from the Sofia National Library, see below) are etymologically related to lexemes denoting ‘death’.

3 Conclusion

The Slavonic text, certainly based on an early Greek protograph, may be a distant witness to an original story which was most probably composed in an Hellenistic Jewish environment; the incantation later became Christianized, while its Semitic (Aramaic) counterpart continued – quite independently – its life in later Jewish magic.

Appendix

Part 1: Apocryphal tradition

Text 1.1: Prayer of St. Sisin, Isidore, Simeon, and Theodor

Published below is a seventeenth-century Serbian redaction of ‘the Sisinnius prayer’. It comes from a miscellany containing *The Book of Hours* (Часослов); the manuscript is currently kept in the Sofia National Library (record No. 631, fols 165–171). The first edition of the text was produced by B. Tsonev (1923, 149–151). The original Slavonic version in the current publication was transcribed by Dr. Iva Trifonova. The translation is made by the author. The text below follows the following conventions:

- < > mark reconstructions of (missing and corrupt) passages, as suggested by B. Tsonev on the basis of the other complementary text-witnesses
- [] indicate conjectural additions in the English translation.

fol. 165.

МЛТВА СТГО СИСИНА НСН^АОРА Н СМЕС^ОНА Н ОЕС^АРА. ВЪ НМЕ ОЦА Н СТГО ДХА. ЯКО ВНСТЬ
 ВОИНЬ ЯКОЖЕ СТН СИСННЬ Н СМЕС^ОНЬ НСНД^ОРЬ НЖЕ МНОГНМЬ ВСЕМЬ ОДЕЛ^ЕВАШЕ .А
 АСРННАНОМЬ .В. НЗМ^ИТЕЛЕНОМЬ. ЕГДАЖЕ БЕШЕ .В.П. ЗЕМЛЮ АРАВНСКОН НЗНД^ОШЕ СТН
 НА ЛОВЬ Н ЯВН СЕ СИСИНУ АГГЛЪ ГНЬ Н РЕЧЕ ЕМЪ. НДН КЪ СЕСТРЕ СВОЕ МЕЛЕНЬТН. ЯКО

fol. 165r.

Е^с родѣла ꙗко снѣове ѣ днѣвольт възель. нѣна млада ѡтроуе ѣмать ѣ хѡцетъ ѣ него днѣвольт хѡцетъ оузѣтъ нъ да те сътвори лова днѣвольт ѣ томѣ прогонѣлъ ѣ въсемъ днѣвольт тогѣа стѣ снѣнъ оустрѣмѣ се ѣдн къ сѣстре свое меленѣтн. ѣ тн беша сътвори на слѣпъ мраморенъ ѣ ѡковаа го бе гвѡзде ѣзана го ѡлово ѣ заково (!) медн-

fol. 166.

ѣмн ѣ въпела бе брашно за 7 летъ ѣ две ѡтроковнн на слѣжѣ себѣ ѣгѣа прилжн се стѣ снѣнъ къ слѣпѣ ѣ вънезапѣ ѣ бнѣ бѣра велѣка ѣ зѣма ѣ реуе стѣ снѣнъ сестро моѣ меленѣтне ѡвръзѣ мн да въннѣ понѣже бѣра велѣна съмѣцаетъ ме ѣ реуе мелетна не смею тн ѡвръзѣ брѣте мон понѣже ѣмать млада ѡтроуе

fol. 166r.

ѣ бою се ѡ днѣвола н реуе стѣ снѣнъ не бон се ѣзъ ѣсемъ ловець днѣвольт томѣ прогонѣтель меленѣтна слѣша глаѣ ѣго ѡвръзе ѣмѣ слѣпъ тогѣа днѣвольт сътвори се просѣно зрѣно ѣ прилѣпѣ се коню потъ копѣто ѣ въннѣ въ слѣпъ тогѣа бѣсть въ полднѣнн меленѣтна ѡсезавѣнн ѡтроѣ своѣ ѡвратѣ ѣго мрѣтво ѣ възпн глаѣсомъ велнемъ

fol. 167.

глѣнн брѣте мон снѣне ѣко тн рекѡхъ такѡ мн бнѣ тогѣа стѣ снѣнъ въсѣа на конъ свон ѣкоже пламень днѣаша врага гонѣца ѡвратѣ врѣбо бѣжн <н реуе> внде лн врага бежѣца ѡтроуе носѣца ѡна бе вндела ѣ рѣе не вндехъ. тогѣа стѣ снѣнъ прокле ѣ цвѣтъ да ѣмашъ ѣ плодъ да немашъ. ѣ пакн ѡвретѣ кѣпна ѣ реуе

fol. 167r.

внде лн врага бежѣца ѡтроуе носѣца ѡна бе вндела ѣ реуе не вндехъ. тогѣа стѣ снѣнъ прокле а кѣпнѣ да сн ѣлкѣ не прѣпетѣе ѣ себѣ на проклѣтѣе де тн корѣнъ тѣ ѣ врѣхъ ѣ пакн ѡвретѣ ѣворъ дрѣво вѣжѣе <н реуе> ѣворѣ, внде лн врага бежѣца ѡтроуе носѣца ѡна бе вндела ѣ реуе вндѣхъ. ѣ реѣ

fol. 168.

стѣ снѣнъ да сн блсвено ѣворѣ да сн въ црѣвахъ клепаа да прозовѣшь правѣдннн на спѣнѣе ѣ грѣшннн на покаанѣе. ѣ пакн ѡвртѣ маслѣна дрѣво вѣжѣе <н реуе>маслѣно не внде лн врага вѣжѣца ѡтроуе носѣца ѡна бѣ вндела ѣ реуе вндѣхъ понѣрн се въ морѣ съ рѣбамн морѣскнмн ѣ реуе стѣ снѣнъ маслѣно <да

СИ БЛѢВЕНА Ѹ ЦРКВА И УЛКѸ НА ИСЦЕЛЕННЕ> ТОГѸ СТИ СИСНИЬ СЪТВОРН МЛТВА КЪ ТѸ И
ВВРЪЖЕ ВЪ^ИЦѸ ВЪ МОРЕ ИЗВАЛУЕ ВРАГА НА СЪХО

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ДИАВОЛЬ ИЗЕЛЪ ГИ САМЪ И РЕЧЕ ИЗЪБАЮИ МИ МАЛКО МАТЕРНО СВОЕ ЕЖЕ ЕСИ СИСАЛЪ
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МОРА НИ ВЕЦИЦА НИ ЗЛЪ ДХЪ ѿ ВЕКА И ДО ВЕКА АМНИЬ.

Prayer of St. Sisin, Isidore, Simeon, and Theodor

In the name of the Father and the Holy Spirit: once there were warriors like Saint Sisin and [St.] Simeon and [St.] Isidor, who defeated everyone – first the Assyrians and second the Ishmaelites. While on his [exploits] in the Arab lands, Sisin went hunting. The angel of the Lord then appeared before Sisin and said to him, “Go to your sister Melentia, who gave birth to five sons, which the Devil has snatched. She now delivered a newborn child and the Devil wants to take it away as well. In order [to prevent this from happening], you should become Devil’s hunter: chase him away together with all [other] devils.”

Then Saint Sisin set off towards his sister Melentia. She had erected a marble tower, bolting it properly with nails, covering it with [molten] lead and bronze

bands. She has taken provisions inside it for six years, along with two maidens to serve her.

When St. Sisin approached the tower, a great storm and cold suddenly broke out. St. Sisin said, “My sister Melentia, open and let me in, because this great storm is bothering me!” Melentia said, “I don’t dare opening and let you in, my brother, because I have an infant, and I am afraid of the Devil.” St. Sisin replied, “Don’t be afraid, I am the hunter and chaser of the Devil.” Having heard his voice, Melentia opened the tower.

The Devil then turned himself into a grain of millet and got stuck beneath the hoof of [Sisin’s] horse and entered the tower. When midnight arrived, Melentia touched her child and realised that it was dead. And she cried with a loud voice, and said, “O my brother Sisin, as I told you, so it happened.”

Then St. Sisin mounted his horse, which was breathing fire, and while chasing the Devil he encountered [a willow-tree], and said, “You God’s willow, have you seen the Adversary running and carrying a child?” It had seen it but said, “I did not see that.” [St.] Sisin then cursed it, “May you blossom but never bear fruit!”⁵⁷ Afterwards he encountered a bramble and said, “Have you seen the Adversary running and carrying a child?” It had seen it but said, “I did not see that.” Then St. Sisin cursed it, “Bramble, may you become an obstacle for man and a curse for yourself; may your top be wherever the roots [of your bush] are.” He then encountered the sycamore, and said, “Sycamore, you God’s tree, have you seen the Adversary running and carrying a child?” It had seen it and said, “I saw that.” And St. Sisin said, “May you be blessed, O sycamore! May you become a *semantron*⁵⁸ in the churches, to call the righteous towards salvation and sinners towards repentance.” He then encountered the olive-tree, and said, “O olive-tree, you God’s tree, have you seen the Adversary running a carrying a child?” It had seen it and said, “I did see that. He dived into the sea along with the fishes of the sea.” St. Sisin said, “O olive – may you be blessed in the church⁵⁹ and be a remedy for people.”⁶⁰

St. Sisin then prayed to the Lord and threw a fishhook into the sea, and pulled out the Devil onto dry [land] and began beating and torturing him, saying, “Give me the children of my sister Melentia, whom you have snatched from her!” Again then Sisin said, “By the living Lord God of heaven and earth, I will not let you

57 Cf. Stith Thompson’s *Motif-Index of Folk Literature*: A2776. Why certain plants are cursed, A2771.10 (*Why willow flowers do not bear fruit*), A2776.2 (*Why weeping-willow is cursed*).

58 The *semantron* (Gr. σήμαντρον) is a portable percussion instrument made of piece of timber (usually heart of sycamore); in the Byzantine commonwealth, in the period predating bells, it was used to gather congregants. This tradition survives in some Orthodox monasteries in the Balkans until today.

59 Olive oil is the basic substance for the production of the *chrism* (i.e. the consecrated oil) which has ecclesiastical functions in liturgical ceremonies.

60 Olive oil is one of the main constituents in producing various remedies, due to its healing properties.

go, Devil! You will not be released from my hands until you give me Melentia's children."

The Devil said, "I ate them." The Devil remained defiant, and said, "Regurgitate your mother's milk which you sucked when young, and then I will regurgitate the children!" Then St. Sisin prayed to the Lord with these words, "Lord Jesus Christ, listen to your servant! Today I, your servant, will glorify You and will put the Devil to shame." And he vomited up his mother's milk. The Devil was ashamed and his strength diminished and he regurgitated the six sons of Melentia. St. Sisin said, "Alive is my God of heaven and earth! I will not release you, Devil! You will not be freed from my hands unless you swear that where my prayer is recited and my name is mentioned, there can not come either [the demon] Mora, or a witch, or the Devil." The Devil then swore before/to Sisin, "In the name of the Most High and heavenly powers and forty priests who constantly sing in heaven, there where my⁶¹ name is mentioned, and my⁶² prayer is recited, in the house of God's servant (say the name), may there not enter neither [the demon] Mora, nor witch nor evil spirit, for ever, amen."

Part 2: Folklore tradition

Published below are the author's English translations of oral accounts recorded during field work in Bulgaria.

Text 2.1: Saint Sisoy and the Devil

There was a certain Sisoy, whose sister gave birth to five children, and they all died, since the Devil was snatching them away. He was snatching them as soon as they were born, and they perished. And she was about to give birth to her sixth child. Her brother, however, decided to pay her a visit. Sisoy mounted his horse and set off. She said to him:

"My brother! I am sorry but I am not opening the door to anybody, since if I open it, the Devil will snatch this child of mine as well."

"My sister, the Devil cannot hide away from me even if he goes to the abyss of the sea. Wherever he goes, I will find him."

So far so good, but as soon as she opened the door, the Devil, who got stuck on the horse as dust, entered as well, and took the child, to whom she has just given birth. And the baby died: it happened just like before.

"Did I not tell you, my brother, not to open to anyone?"

61 Should read "your."

62 Should read "your."

He said, “My sister, I will find the Devil, no matter where he hides!”

So he set off and encountered the willow-tree, and said, “Willow-tree, I am going to ask you something. Have you seen the Devil passing by, with a child in his mouth?”

“No, I have not seen such a thing.”

“Willow-tree, may you flourish with blossoms, but never bear fruit!”

That’s how he cursed it.

Then he encountered the olive-tree and said, “Olive-tree, I am going to ask you and beg you to tell me the truth. Have you seen the Devil passing by, with a child in his mouth?”

It said, “Indeed, it passed by.”

“Where did he go?”

“In the abyss of the sea, in the sea.”

He told it, “May you flourish with blossoms, and bear fruit, and open monasteries!”

The olive-tree gives olive oil, does it not?

And then he went to the sea straight away. And he inserted there his staff, so that he may catch the Devil. Indeed, Saint Sisoy caught him by the nose, dragged him to the seashore, and said to him, “Listen to what I am going to ask you. Have you snatched away the children of my sister, five or six of them, who were alive?”

“I took them.”

“Why did you take them? I want you to give them back to me straight away!”

Then the Devil told him, “Only if you can regurgitate the milk which you sucked from your mother, the milk which you sucked [as an infant], only then will I give you back the children of your sister safe and sound!”

Then Saint Sisoy prayed to the Lord:

“O God my Lord! Help me regurgitate my mother’s milk, so that I may put the Devil to shame!”

And then Saint Sisoy regurgitated his mother’s milk. Then the Devil regurgitated the six children, safe and sound. Saint Sisoy mounted them on his horse and took them with him.

“My sister, open the door!”

“What are you bringing along, my brother?”

“I am bringing you back your six children – alive! I took them from the Devil!”

And then he [=Saint Sisoy] attached two huge stones to the Devil’s neck and pushed him into the sea.

“You will never harm people anymore!”

And this is how the Devil sunk into the sea; that is why there is no more Devil [who snatches the children away].

The text was recorded 9 March 1989 in the village of Maluk Dervent [Малък Дервент], the district of Ivaylovgrad [Ивайловград], South-Eastern Bulgaria by Valentina Ganeva. The story was narrated by Gela Ivanova Ruseva, born 1898 in the same village.

Text 2.2: About the willow tree and the olive tree

Saint Sisoy had a sister whose name was Meletia. The Devil had strangled all her children. With trickery he snatched away her last child and ran away. Saint Sisoy set off to find him. When he passed near by a willow tree, he asked whether it had seen the Devil with an infant in his mouth. But it misled him and he cursed it, “You willow tree! May you blossom, but never bear a fruit!”

Later Saint Sisoy saw an olive tree and asked it as to whether it saw the Devil. She answered that he hid with the child in the abyss of the sea. Then the saint blessed it that its fruit becomes oil in the church – to bring light before God.

The text was recorded in the village of Raduil, Samokov area, Western Bulgaria, by Rositsa Angelova; the account was given by the 46-years old woman by the name of Gergina Stankova. This historiola was first published in Sofia, in 1948, in Vol. 8–9 of the *Transactions of the Slavonic Philology Seminar at the University of Sofia (Известия на Семинара по Славянска филология при Университета в София)*, p. 138; it was reprinted by Kuzmanova & Kotseva (1983, 202–203).

Text 2.3: “Did you happen to see my child?”

Well, when He [Christ] had set off to hide [from His pursuers], His mother [had tried to find Him and] had asked [each and every creature]:

“Have you seen my Child?”

She first asked the aspen. [The aspen answered,]

“Oh, well, I am, myself, all shaken”, it said, “would I care and would I look for your Child?”

She [the Virgin Mary] said:

“May you shake for ever! May you never stop shaking!”

Then she asked the willow,

“Did you happen to see my Child?”

And the willow (doesn’t the willow-tree tremble as if flying?) answered:

“I am, myself, flying here all alone, how can I possibly [look for] your Child?”

“May you forever”, she [the Virgin Mary] uttered, “be flying! May you never stop!”

She went further along and asked the blackberry bush, “Did you happen to see my Child?”

“I saw Him indeed”, it said. “And also those who were pursuing Him. I made them stumble and they fell ... So that they were left behind back, they did not capture Him!”

Then she [the Virgin Mary] told the blackberry bush:

“May the digger dig you out on one side, and may you take root on your other side! May you never wither!”

And it is indeed, like this. Even if that little⁶³ is left in the earth, it [the blackberry bush] would take root. It would not wither! For it made those that pursued Him, the Jews, stumble!

The text was recorded 3 June 1993 in the village of Bulgari [Българи], the district of Malko Turnovo [Малко Търново], South-Eastern Bulgaria by the present author. The story was narrated by Yanka Lefterova Georgieva [Янка Лефтерова Георгиева], born 1929 in the same village, no formal education.

Text 2.4: “Have you seen my child?”

[When Christ tried to escape] they set out in pursuit of Him. And He ran away and they kept chasing Him. Thus He happened to meet a willow. And the willow asked Him where He was fleeing to.

And it is as if weeping – you see, it lets [its branches down] as if it is [weeping] ... And while weeping, it asked Him [where He was going], and He said, “May you weep”, He said, “forever! May you weep forever!”

Later on, His Mother set off after Him and asked everywhere everyone, “Did you happen to see my Child?”

She, His mother, went to the linden tree and asked it, “Did you happen to see my Child?”

The linden tree answered, “No, I did not! Shaken as I have been – how could I see your Child?!”

“May you shake”, she said, “for ever!”

The blackberry bush made Him trip, so He fell down and thus He was held back, so that they could capture Him.

And He blessed it, “May the digger dig you out from the one side, and may you take root on the other!”

And it is precisely like this, if even that much is left from the blackberry bush, it takes root!

The text was recorded 3 June 1993 in the village of Bulgari [Българи], the district of Malko Turnovo [Малко Търново], South-Eastern Bulgaria by the present author. The story was narrated by Dona Filcheva Filcheva [Дона Филчева Филчева], born 1912 in the same village. She was the churchwarden of the Holy Chapel of Saint Constantine.

63 The storyteller shows the palm of her hand, to indicate the size.

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**C. The Two Paradigms: Towards a New Textual
Criticism for Mesopotamian Technical Compendia**

Francesca Rochberg

The Babylonians and the Rational

Reasoning in Cuneiform Scribal Scholarship

“Any talk of ‘the human mind’ can only be presumptive, and will reflect no more than our partial knowledge of styles of rational discourse in the long register of traditions and forms of social life.”

Rodney Needham, 1973, p. 159

“Irrationality, like rationality, is a normative concept. Someone who acts or reasons irrationally, or whose beliefs or emotions are irrational, has departed from a standard; but what standard, or whose, is to be the judge?”

Donald Davidson, 2004, p. 189

Abstract: Assyrian and Babylonian divinatory, astrological, magical and medical texts that characteristically deal in correspondences and properties testify to an important context of the rational in cuneiform science. Focusing on analogical reasoning, rationality in cuneiform scholarly texts can be seen as independent of the dictates of Western logic, or of the cognitive-historical model wherein rationality unfolds progressively through history. The argument for cuneiform sciences as contexts of rationality is that reasoning by analogy was a primary and essential way to forge connections between phenomena in different domains, not, however, within a physical/metaphysical matrix defined by nature and God (or gods) such as is found in Western science and natural magic, but within a comprehensive world structure wholly independent of the conception of nature.

1 Introduction

In works as long ago as the Frankfort et al’s *Intellectual Adventure of Ancient Man* (first edition, 1946), or as recently as Robert Bellah’s monumental *Religion in Human Evolution: From the Paleolithic to the Axial Age* (2011), Mesopotamian culture has not survived comparative analyses of rationality. For both accounts rationality is the marker of an evolutionary success story rather than being one element in the sometimes contradictory aspects of any culture’s thinking (our own included) about the world in which it exists. In neither of these works has the thinking of ‘the Mesopotamians’ crossed the great cognitive breach separating Us from ‘Them’. ‘They’ never matriculated.

The Frankforts’ *Intellectual Adventure of Ancient Man* mounted an inquiry into the rational capacity of “ancient Mesopotamian man,” and found it to be qualita-

tively different and less developed than in later historical societies. In accordance with the standards of investigation of their time they gauged the difference in the kind of thought characteristic of ancient peoples in terms of criteria for rationality exemplified by Western logic and science, and, as well, in terms of whether they had separated nature from culture. In dichotomizing the propensity to reason one's way to an understanding of nature (science) or to tell stories about gods (myths) as a substitute for such reasoned understanding – all that one can manage with a mythopoeic mind – rationality in ancient Near Eastern society, for the Frankforts, did not figure prominently in its “intellectual adventure”. The Frankforts were not the only ones with such views of cuneiform sources. In the context of cuneiform medicine too, as Markham Geller pointed out, historian of medicine Henry Sigerist, writing in the middle of the 20th century, assessed it to be “dominated by magic and religion”.¹ No doubt the Frankforts and Sigerist would have readily conceded that ancient Near Eastern societies and states were managed on the most rational of bases, requiring the exercise of reason no less than in any other society or at any other time in history. But for scientific rationality the stakes were higher. The present essay is not so much a conspectus of but a response to some of the ways in which cuneiform texts have been evaluated with regard to the question of the rational, specifically, the rational and its relation to scientific knowledge.

The subject of the rational is of dauntingly vast proportions. There are many conceptions and aspects of rationality,² most of which will remain outside the bounds of the following discussion, for example, the importance of Weber or the Frankfurt school in this context. Here I take as most useful for historical evidence the conception of rationality as conformity to normative standards.³ While this is not an exhaustive criterion, and in its way may even be too much a truism, it will serve present purposes. Viewing rationality as conformity with a given normative system places it in the sphere of reasoning and cognitive style, rather than, say, decision-making, and reasoning is what is at stake here.

Ever since Aristotle's *Posterior Analytics*, e.g., I.2, 71b, reason by demonstration (*apodeixis*) has been the critical underpinning of scientific knowledge (*episteme*). Thus, in the *Nic. Ethics* VI.3.4,

Scientific knowledge is, then, a state of capacity to demonstrate, and has the other limiting characteristics which we specify in the *Analytics*, for it is when a man believes in a certain

¹ Sigerist 1951, 447, apud Geller 2001/2002, 50.

² A useful introduction with extensive bibliography from philosophy and psychology is Nickerson 2008.

³ Of course the idea of knowledge, and with it rationality, is tied to a variety of ways of justifying a hierarchical relationship between knowledge and belief, knowledge once being defined as “justified true belief”. I purposely do not include “belief” here, so as not to enter into a potential mine field of complexity in attributing to the Assyrians and Babylonians a “belief”, or set of “beliefs” as against knowledge. Needham 1973 shows how that subject demands a deft and concerted treatment all its own.

way and the starting-points are known to him that he has scientific knowledge, since if they are not better known to him than the conclusion, he will have his knowledge only incidentally. Let this, then, be taken as our account of scientific knowledge.

From an Aristotelian standpoint, then, a particular form of reasoning by deductive demonstration produces that special form of knowledge which is science. The defining character of scientific knowledge as certain, justified, and true stems from its logical relationship to first principles, or premises. Logical consequence, therefore, became a key ingredient of scientific knowledge.

While the Aristotelian model of knowledge was debated by Christian natural philosophers until the 16th century, to be mostly superseded in the 17th century,⁴ the logical criteria for knowledge set out in the *Posterior Analytics* still fundamentally define scientific rationality for us, serving to create the hierarchy that applies to knowledge as against belief. In 2010 a special issue of *Synthese* was devoted to “the classical model of science”, described as “a millennia-old model of scientific rationality”.⁵ The papers there focused “on the role, the significance and the impact of the traditional axiomatic ideal of scientific knowledge in the history of philosophy from Aristotle to the twentieth century”.⁶ In their introduction, the editors, Arianna Betti and Willem R. de Jong, defined this model of science as a system of propositions and concepts satisfying seven conditions.⁷ Their seven conditions systematized the ideal standards of scientific rationality, viewed as comprising “the core of what a proper science should look like according to that ideal”, and which, they said, had “remained remarkably constant for more than two millennia”.⁸ This classical model is inferred and reconstructed specifically from the history of Western philosophical thought about science, scientific method, and scientific explanation. Appropriate objects of knowledge, and the conditions for something to be an object of scientific knowledge, as established in this model of scientific rationality, belong to a discourse which sought to reason deductively from first principles.⁹

Aristotle classified all human beings as capable of reason, but on a sliding scale, for example, from men to women to slaves.¹⁰ And the capacity for reason,

4 Gaukroger 2006, 455 ff.

5 Betti & de Jong 2010.

6 *Ibid.*, 181.

7 The seven conditions met by “the classical model of science”, specified as “a system S of propositions and concepts (or terms)” are enumerated on 186.

8 *Ibid.*

9 Nersessian 2008, 11, however, notes that when it comes to theory building, as opposed to theoretical results expressed as laws and axioms, “many philosophers now agree that the basic units for scientists in working with theories are most often not axiomatic systems or propositional networks, but models”.

10 Lloyd 2007, 151–152.

in a particularly Aristotelian philosophical sense, has frequently served as a comparative measure of intellectual development. Ernest Gellner said: “one persistent attempt to find a thread in the history of mankind focuses on the notion of Reason – Human history, on this view, is the unfolding of rationality. Human thought, institutions, social organization, become progressively more rational.”¹¹ During the early to mid-19th century, when this progressive view of human history was itself advancing, and with it racial hierarchies were becoming biologized, living, non-Western, non-industrialized, non-white societies were judged to have remained behind in their rational capacities because they had not independently produced logic and science, favoring instead the irrational thinking of magic and ritual. Some of that research resorted to craniometry, claiming an empirical basis for what was in fact pseudo-scientific and racist theory.¹² Dead, non-Western and pre-modern societies were later subjected to evaluation in terms of progressive ideals to similar effect.

The question of how characteristic rationality is of the human species is longstanding and of interest from many perspectives. As Stephen Stich remarked:

Aristotle thought man was a rational animal. From his time to ours, however, there has been a steady stream of writers who have dissented from this sanguine assessment. For Bacon, Hume, Freud, or D. H. Lawrence, rationality is at best a sometimes thing. On their view, episodes of rational inference and action are scattered beacons on the irrational coastline of human history. During the last decade or so these impressionistic chroniclers of man’s cognitive foibles have been joined by a growing group of experimental psychologists who are subjecting human reasoning to careful empirical scrutiny. Much of what they found would appall Aristotle. Human subjects, it would appear, regularly and systematically invoke inferential and judgmental strategies ranging from the merely invalid to the genuinely bizarre.¹³

In view of the clinical studies in Stich’s article, the capacity for rational *and* irrational thought and action looks like the privilege of every normally functioning human being. Suddenly, rationality in human history does not appear to be inherently progressive, but simply variable according to contexts. Accordingly, just as it should not have surprised anyone, though it did, that E. R. Dodds would deliver his Sather lectures in Berkeley on the Greeks and the irrational in the late 1940s,¹⁴ neither should it come as a surprise to speak now, though it might, about the Babylonians and the rational.

Two interrelated cognitive-historical projects bear on the use of evidence from the ancient Near East in a comparative analysis of rationality. The first is not explicitly, but certainly implicitly, progressive, and the second has great affinity for the progressive account of the history of humanity as one of unfolding and ever ad-

¹¹ Gellner 1988, 39.

¹² Anderson and Perrin 2009, 83–98 and Gould 1996.

¹³ Stich 1985, 115 also used as the epigraph for Hanna 2006, 115.

¹⁴ Then published as Dodds 1951.

vancing rationality. The first is the identification of cultures that either do or do not exhibit the kind of rational thought associated with science or philosophy. Those that do, by virtue of their cognitive style, join ranks with our own and are thus essentialized, and we with them, as scientific and rational. Those that do not, fail to consider the world in terms of nature and its laws. In such cultures the understanding of physical causality is undermined by an irrational belief in the supernatural. The boundary between rational and irrational thinking is judged by the rigorous yet limited criterion of whether knowledge is logically consequent (deductive) or not, thus appealing to Aristotelian methods of analysis. The second and related project looks for an explanation of the similarity between Others and Ourselves in terms of a watershed moment that cognitively changes everything forever. Such moments have been found in social behavior (as in the use of writing), spiritual attitude (as in being critical of an established authoritative worldview), or even cognitive ethos (as in the triumph of science over revelation).

References to a cognitive shift have been made by many, from Claude Lévi-Strauss's *Savage Mind* to Ernest Gellner's *Big Ditch*, and critiqued as well, from Jack Goody's *Grand Dichotomy* to Bruno Latour and Philippe Descola's *Great Divide*. The shift has sometimes been identified in the 5th century BCE, sometimes not until the 17th century CE. Most have been plainly critical of the dichotomizing strategy itself, specifically the division between archaic (whether in ancient or in modern ethnographic society) and modern, in terms of the presence or absence of rationality. Different solutions have been proposed. Gellner saw two kinds of rationality, one for each side of the ditch, described in terms of Durkheim and Weber, their sociological forefathers. Thus:

the two great sociologists of rationality were really concerned with radically different species of it. ... Durkheim meant by rationality the fact that men are bound, in thought and conduct, by the concepts shared by a culture. He found the solution to his problem in ritual. Weber's problem was the emergence of a distinctive style of rationality, rule-abiding, capable of instrumental efficiency in disregard of tradition.¹⁵

Gellner and Lévi-Strauss each placed the changeover to scientific rationality in modernity as a result of shedding all forms of causality but the physical for an understanding of a fully autonomous realm of nature and its laws.¹⁶ Latour argued that we are not, nor have we ever been, modern.¹⁷ All the earmarks of the modern point of view, particularly the separation of nature from culture, he said, never really happened. We only *claim* "to mobilize nature",¹⁸ but our views are as much a function of a cultural filtration system as anyone's in the archaic past. Descola

¹⁵ Gellner 1988, 111 and see Aya 1996, 560.

¹⁶ Gellner 1979, 145–147 and Gellner 1982, 188–200.

¹⁷ Latour 1993.

¹⁸ *Ibid.* 97.

put the distinction between nature and culture as only one way of engaging with the world, namely the modern Western way, and that we are mistaken to take naturalism as universal.¹⁹ As he said, nature “has been constructed little by little as an ontological tool of a particular kind, designed to serve as the foundation of the cosmogenesis of modernity”.²⁰ Certainly, if rationality across the board historically is to be defined in terms only of Western epistemological, ontological, and methodological naturalism, in which, as David Papineau put it, “reality is exhausted by nature”,²¹ then there is nothing to discuss here. This is clearly not the case.

By way of a final point of introduction, the question of positioning the ancient Near East on a cognitive historical map, both with respect to a place called ‘Western’, as well as to a time called ‘premodern’, raises the specter of intellectual, or cognitive, imperialism. What Sheldon Pollock said in his critique of the history of politics in premodern India is relevant here:

Already a generation ago historians of Asia were attacking what they called “intellectual imperialism” in the imposition of Euro-American models and presuppositions for studying non-Western polities. Yet the old critique was itself contradictory. At the same time as it challenged the epistemic domination of the West it ... rejected as futile ... and as pernicious any categorization that renders the non-West radically different. While the phrase “intellectual imperialism” may have a dated ring today, the problem it flags has not vanished, and the contradictions of the critique are those we are still living with.²²

The cost of granting the ancient Assyrians and Babylonians their cultural and cognitive individuality, as against Western and modern counterparts, cannot be to typify their reasoning as irrational and deny them participation in the history of science. In other words, we should not have to make their thought like ours for it to be recognized as rational and for their ideas of knowledge to be participant in what we call science.

Here I propose, with respect to cuneiform texts, to look at contexts of rationality in scribal scholarship. My aim is to steer clear of the history of mind and turn instead to intellectual history, whereby the cuneiform world might be considered without the intervention of The Axial Age, The Great Divide, The Grand Dichotomy, or The Big Ditch. My way in, however, is by a short detour through the alleged irrational.

¹⁹ Descola 2006, 146, Descola 2013 and Descola 2010, 334–340.

²⁰ Descola 2013, 63.

²¹ Papineau 2013.

²² Pollock 2009, 6.

2 The Greeks and the decline of rationality

In his celebrated Sather lectures of 1949 E. R. Dodds debuted the irrational Greeks.²³ He explained the impetus for his study of the Greeks and the irrational as stemming from an encounter at the British Museum, when another visitor in the gallery confessed that the Elgin Marbles did not move him because they were “all so terribly rational”.²⁴ Dodds admitted that, compared against the art of some other cultures, ancient, anthropological, and even modern, “the art of the Greeks, and Greek culture in general, is apt to appear lacking in the awareness of mystery and in the ability to penetrate to the deeper, less conscious levels of human experience”.²⁵ Dodds set out not to deal with Greek science, still for him exemplary of rational reasoning, but with the Greek experience of the divine, of possession, dreams, and the human psyche. For Dodds, science epitomized rational thought, making its appearance among the intellectuals of the late 5th century and again, briefly, in the Hellenistic period (3rd century BCE) among a wider social class, before things deteriorated. By his account, pseudo-scientific (his term) writings of later authors, often attributed to divine revelation or fictive Eastern authorities (Chaldeans, Egyptians, Persians), injected irrational beliefs “of the Hellenistic masses”²⁶ into the thinking of educated Greco-Romans. The attribution of a decline in rational science to influence from the Orient was rooted much earlier. In the early 20th century Lynn Thorndike pointed to Franz Cumont as being guilty of that “glib assumption”, as he qualified his own position on magic in Greek religion, literature, and history:

But they [the Romans], too, were supposed to have risen later under the influence of Hellenic culture to a more enlightened stage, only to relapse again into magic in the declining empire and middle ages under oriental influence. Incidentally let me add that this notion that in *the past* orientals were more superstitious and fond of marvels than westerners in the same stage of civilization and that the orient must needs be the source of every superstitious cult and romantic tale is a glib assumption which I do not intend to make and which our subsequent investigation will scarcely substantiate. But to return to the supposed immunity of the Hellenes from magic; so far has this hypothesis been carried that textual critics have repeatedly rejected passages as later interpolations or even called entire treatises spurious for no other reason than that they seemed to them too superstitious for a reputable classical author. Even so specialized and recent a student of ancient astrology, superstition, and religion as Cumont still clings to this dubious generalization and affirms that ‘the limpid Hellenic genius always turned away from the misty speculations of magic’.²⁷

²³ Published in Dodds 1951.

²⁴ *Ibid.* 1.

²⁵ *Ibid.*

²⁶ *Ibid.* 245.

²⁷ Thorndike 1923, 20–21.

Dodds' prime example of the Hellenistic trend toward the irrational was astrology. He quoted Gilbert Murray, who described astrology as having fallen "upon the Hellenistic mind as a new disease falls upon some remote island people".²⁸ While Dodds agreed with Murray on the nature of astrology, he noted that there was skepticism (that is, signs of rationality) in an earlier period among Greek intellectuals about the precepts of astrology, for example Eudoxus (first half of 4th century BCE), as reported by Cicero in *De Div* 2.87, and he (Dodds) also suggested that Berossus (280 BCE) failed to impress his audience. By Dodds' account it was later, in the 2nd century, that Babylonian astronomy, and with it astrology, was taken up with enthusiasm, due to an intellectual climate for the acceptance of Babylonian astrology stemming from Platonic, Aristotelian, and Stoic ideas about the superiority and divinity of the heavens as well as of the intelligence and souls of the stars. Only the Epicureans seem to have demurred. Otherwise, Dodds assessed the popularity of astrology to be a manifestation of a great *trahison des clercs*, noting that, at a critical juncture, the Stoic Diogenes, called the Babylonian in Strabo, *Geography* Bk 16.1.16,²⁹ as the head of the Stoa in Athens (ca. 200–150 BCE), had the effect of slowing the progress of rational Greek science by his emphasis on religious cosmology, divination, and astrology.³⁰ To this, Dodds added that "besides astrology, the second century BC saw the development of another irrational doctrine which deeply influenced the thought of later antiquity and the whole Middle Ages – the theory of occult properties or forces immanent in certain animals, plants, and precious stones."³¹

The mid-20th century, in which Dodds' study of 'the irrational' in Greek culture appeared, was a time that saw great successes in the scientific community and a renewed energy in the philosophical community to define scientific rationality. The polarization of science and non-science, scientific rationality and lower forms of reason, was rooted in nineteenth-century arguments about the conflict and separation of religion and science, reverberations of Hume's aversion to religion and metaphysics.³² This polarization affected the historical community and with it dis-

28 Murray 1951, 139 of the chapter entitled, interestingly, "The Failure of Nerve", quoted by Dodds 1951, 245 and n. 50.

29 In this passage Strabo explained that Diogenes was from Seleucia, but that "as we call the country Babylonia, so also we call the men from there Babylonians, that is, not after the city, but after the country; but we do not call men after Seleuceia, if they are from there, as for example, Diogenes the Stoic philosopher."

30 Dodds 1951, 246. For Diogenes, see Lehoux 2008, 253. He is also mentioned in Cicero, *De Natura Deorum* 1.15 as following Chrysippus in turning myth to natural philosophy.

31 Dodds 1951, 246.

32 The famous passage is: "If we take in our hand any volume of divinity or school metaphysics (works on religion and philosophy) let us ask this question, does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact or existence? No. Commit it then to the flames, for it can be nothing but sophistry and illusion." See the edition of Hume 1777 by Selby-Bigge 1975, 165.

cussion of the Babylonians and the rational. Nor did Dodds challenge that polarity. Nevertheless, he drew a more nuanced picture of the Greek Enlightenment, both of its origins and of the reaction to it, particularly in Athens of the later 5th century BCE, where, “disbelief in the supernatural and the teaching of astronomy were made indictable offences”.³³ He said: “the evidence we have is more than enough to prove that the Great Age of Greek Enlightenment was also, like our own time, an Age of Persecution – banishment of scholars, blinkering of thought, and even (if we can believe the tradition about Protagoras) burning of books.”³⁴

Otto Neugebauer, writing in the very period of *The Greeks and the Irrational* said:

To a modern scientist, an ancient astrological treatise appears as mere nonsense. But we should not forget that we must evaluate such doctrines against the contemporary background. To Greek philosophers and astronomers, the universe was a well-defined structure of directly related bodies. The concept of predictable influence between these bodies is in principle not at all different from any modern mechanistic theory. And it stands in sharpest contrast to the ideas of either arbitrary rulership of deities or of the possibility of influencing events by magical operations. Compared with the background of religion, magic and mysticism, the fundamental doctrines of astrology are pure science.³⁵

Setting astrology up against all that symbolized irrationality was, in effect, not saying much in its defense. Neugebauer sought to justify the status of astrology as an ancient science by saying that if we ignore the premise of stellar influence, the rest follows rationally, like any other mechanistic science. William Newman and Anthony Grafton, writing almost forty-five years later, found that Renaissance astrologers practiced a “rational art of living”,³⁶ but in the middle of last century, Neugebauer, who had studied closely many Greek astrological texts, indeed had edited (with H. B. van Hoesen) the Greek horoscopes, struggled to reconcile modern and ancient standards of rationality. Astrology belonged within the history of the ancient astral sciences, as Neugebauer saw them, yet, the distinction between science and “nonsense” (his word), i.e., non-science, was for him still defined along modern lines, as it was for Dodds. I do not mean to imply that historians of science today no longer differentiate between sense and nonsense, only that the dividing line between non-science and science is now more regularly historicized.

Dodds’ study was of immense importance for its attention to religious and psychological aspects of Greek culture that coexisted with the rise of philosophical explorations of rationality and reason, astronomy and physics. His subject was ritual life, possession, prophecy, dreams, madness, and the soul. It was a study of the human being in Greek antiquity not of the Greeks’ study of natural phenomena

³³ Dodds 1951, 189, with nn. 63 and 64.

³⁴ *Ibid.* with n. 69.

³⁵ Neugebauer 1969, 171.

³⁶ Newman and Grafton 2001, 13–14.

or formalization of methods for such study. As such, he did not detail criteria for determining the rationality of scientific knowledge. Nor did he have to. The rationality of Greek science was a given. Dodds credited the Hellenistic period as one of great creativity and adventure, “as if the sudden widening of the spatial horizon that resulted from Alexander’s conquests had widened at the same time all the horizons of the mind”.³⁷ The shift in social values of the period seemed to correlate with a growth in the exact sciences (Dodds used the term abstract sciences), mathematics and astronomy, and in the systematic expression of human reason. This, he judged, was epitomized by Stoicism, in that, Diogenes of Babylon notwithstanding, “the Stoic contemplated the starry heavens, and read there the expression of the same rational and moral purpose which he discovered in his own breast ... for both schools [Stoicism and Epicureanism], deity has ceased to be synonymous with arbitrary Power, and has become instead the embodiment of a rational ideal.”³⁸

With respect to the cuneiform world the rationality of scribal knowledge has not been taken as a given. Quite the contrary. It is still up to Assyriologists to uncover and defend its rationality in the lingering afterglow of scientism and positivism from the last century.³⁹ As already indicated, Neugebauer was one of its early defenders. In reference to cuneiform mathematical texts, he said:

No trace of number mysticism has ever been found in these often highly sophisticated but perfectly rational mathematical texts which range from the twentieth to the first century B.C. Nevertheless, the “Babylonian” origin of whatever is irrational or mystical (in fact or reconstructed) remains the inexhaustible resource for synthetic histories of science and philosophy, whether it concerns the Pythagoreans or the Ionians, Plato or Eudoxus, Nicomachus, Proclus, etc., etc.⁴⁰

And yet subsequent attempts to correct the misapprehension that the Greeks invented science and rationality, and to prove that rational reasoning, and with it science, does not have to be categorically excluded from the ancient Near East has largely taken the form of showing that the contents, form, or methods of the cuneiform scholarly and technical writings satisfy criteria for rationality established in ancient Greek philosophy.

3 The Babylonians and the rise of rationality

A number of studies in which a Babylonian rationality is or is not found in terms of the standards set by Aristotelian, or generally speaking, Greek, criteria have

³⁷ Dodds 1951, 237.

³⁸ Ibid. 240. For an expression of this idea, see Cicero, *De Natura Deorum* I.15, on Chrysippus’ notion of divine power that “resides in reason and in the soul and mind of nature taken as a whole”.

³⁹ Rochberg 2004, 14–43.

⁴⁰ Neugebauer 1963, 528–529.

established a platform for further research. After the early formulation by the Frankforts,⁴¹ the next major statement was Mogens Trolle Larsen's 1987 investigation of the "Mesopotamian Lukewarm Mind".⁴² There he concluded that, despite the nascence of rational reason in cuneiform omen texts, a basic difference in mode of thought and an insufficient domestication of the savage mind prevented the "Greek Miracle" from occurring in ancient Mesopotamia. Appearing in the same year was Jean Bottéro's discussion of abstract thought and the "scientific spirit", again with respect to cuneiform divinatory texts, which he judged to have anticipated the miracle by "more than fifteen centuries".⁴³ Then in 2009 I analyzed the formal nature of Assyro-Babylonian omen statements in terms of the logic of indicative conditionals and whether omen statements were formally related to the inference rule known as material implication (P implies Q), though I did not frame the question as one of progressive cognitive evolution.⁴⁴ Most recently, the study of the early Babylonian astronomical compendium MUL.APIN by Rita Watson and Wayne Horowitz in 2011 posited a cognitive shift toward science within cuneiform culture evidenced in a teleological progression from simple list making to more complex, abstract, even axiomatic reasoning.⁴⁵ Not invested in a comparison with Greek logic, and from a decidedly anti-teleological standpoint, Markus Hilgert proposed for a different set of evidence from that discussed in these other studies a native epistemic style in the culture of the cuneiform scribes, taking as an artifact of that style the sign list *Diri* for compound logograms.⁴⁶ To replace the old linear evolutionary epistemic vision of word lists as mere rudiments of "fields of knowledge" (botany, zoology, theology) Hilgert defined within the structure and content of *Diri* speculative hermeneutic principles deployed in a highly non-linear use of graphemic and semantic associations.⁴⁷ A consensus is not to be had among these studies, but they do provide a foundation from which to proceed.

Larsen's study was steeped in anthropological literature, and the concept of a "Mesopotamian lukewarm mind", pointed to Lévi-Strauss' "cold", i.e., static, versus the progressive "warm" or "hot" societies that develop historically. The betwixt and between sort of society was called lukewarm by social anthropologist and filmmaker Luc de Heusch, to whom Larsen referred.⁴⁸ As a starting point for the argu-

⁴¹ See Rochberg in Raaflaub, ed., in press.

⁴² Larsen 1987, 203–225.

⁴³ Bottéro 1987, translated in 1992 by Zainab Bahrani and Marc van de Mieroop, 125–137.

⁴⁴ Rochberg 2009, 2010a and 2010b, 253–265. See further discussion of the issue in Geller 2011, 118–121.

⁴⁵ Watson and Horowitz 2011.

⁴⁶ Hilgert 2009.

⁴⁷ *Ibid.* 298–299. For a description of the mechanics of *Diri*, see also Finkel 2010, 14–16.

⁴⁸ Larsen 1987, 205. See also Salomon 1998, 270, which cites a paraphrase of Luc de Heusch by Jonathan Friedman about "hierarchical societies ('chiefdoms') and 'archaic' states – so-called lukewarm societies". See also Friedman 1985, 175.

ment, Larsen cited Jack Goody's critique of the rigid binarism and ethnocentrism that Goody had termed the Grand Dichotomy. But Larsen was particularly interested in the flaw of conflating contemporary ethnographic societies with ancient peoples, citing the *The Intellectual Adventure of Ancient Man* as an example from within the field of ancient Near Eastern studies. Nonetheless he suggested that Lévi-Strauss' notion of the "cold" "science of the concrete" was useful for understanding cuneiform casuistic texts, meaning those that compiled "If P, then Q" statements, or cases, such as comprise omen texts. Larsen found Lévi-Strauss's "science of the concrete" – although Lévi-Strauss intended the term to characterize an alternative orientation toward the world, not an evolutionary stage – relevant for its similarities in creating taxonomic order, system, and a particular kind of causation. Larsen took his evidence both from the lexical and the casuistic literature, each of which he saw as fundamentally empirical and reflective of a desire to "present a systematic and ordered picture of the world".⁴⁹

The emphasis on principles of ordering was important to Larsen as prerequisite for abstract reasoning. As the earliest evidence for the articulation of abstract generalizations, Larsen cited the commentary series to liver omens called *multābiltu*, which established principles for interpreting signs on the liver.⁵⁰ Thus: Thickness means peaceful dwelling as in: if the Increment is thick: the crops will thrive (Tablet I: 14), and, to bend downwards means success as in: if the Presence (is bent) downwards like a sickle: you will surround the enemy land in a siege (I: 17). Larsen saw that "in this respect the text appears to represent a step towards an abstract 'domesticated' science, away from the world of the 'savage mind'".⁵¹ It was not, however, a step that would be productive of science because, as he said, "there is no logical basis for the relationships which are postulated".⁵² The absence of what he judged to be a logical basis for the relationships between sign and consequent, reflected a lack of rationality. In other words the particular connections that cuneiform scholars made, in the absence of physical causal relationships, seemed illogical, hence irrational. The complete realization of rationality was prevented because of the kinds of occurrences that interested the scribes. As I have pointed out elsewhere, it was not a matter of discovering what always and regularly happens when one event follows another, such as "if the sun sets, then the birds stop singing", or "if black clouds move in, a thunderstorm will occur", where understanding the effects of physical causality is rewarded by empiricism and experience.⁵³ Omens make claims to the repeatable nature of events that do not relate to one another in physical causal terms, such as:

⁴⁹ Larsen 1987, 209.

⁵⁰ Koch 2005, 93–94.

⁵¹ Larsen 1987, 215.

⁵² Larsen 1987, 216.

⁵³ Rochberg 2004, 272.

If water secretes inside the gall bladder: The flood will come.⁵⁴

If the gall bladder is turned and has wrapped around the ‘finger’: The king will seize the enemy country.⁵⁵

These correlations have a meaningful semantic, or sometimes also an orthographic, analogous relationship, that serves to justify the connection. Occasionally, however, an omen will evince a different kind of connection between antecedent and consequent, as this omen quoted in a report: “If the sun is surrounded by a halo: it will rain” (DIŠ 20 TÜR NIGÍN ŠĒG ŠUR).⁵⁶ It is the case, reflected in folk wisdom elsewhere, that halos surrounding the sun or the moon are an indication of coming rainstorms. The understanding that a halo around the sun will be associated with rain is not dependent upon the understanding of the high cirrus clouds containing ice crystals that create the illusion of a halo. The correlation, not the cause, was of importance. On the basis of the overwhelmingly non-causal nature of Babylonian omen statements, Larsen’s final assessment was that scientific rationality was not evinced in the cuneiform tradition, which remained conceptually equivalent to the “science of the concrete”.

Though Larsen saw an incomplete development of a scientific rationality in cuneiform texts, he judged there to be a certain advance in cognition (a warming of the Mesopotamian mind) as a result of the technology of writing. Here he drew, as Watson and Horowitz later would also, on Jack Goody’s *Domestication of the Savage Mind*, where he (Goody) said:

I have tried to take certain characteristics that Lévi-Strauss and others have regarded as marking the distinction between primitive and advanced, between wild and domesticated thinking, and to suggest that many of the valid aspects of these somewhat vague dichotomies can be related to changes in the mode of communication, especially the introduction of various forms of writing.⁵⁷

But Larsen was also critical of technological determinism (sometimes mistakenly associated, not by Larsen, with Goody⁵⁸), and did not find the difference in cognition to be a direct or simple function of writing. Rather, he located the critical difference in the lack of explicit second-order thinking among cuneiform scribes, who were preoccupied with the preservation of a tradition, not with criticism or explication.

Also stemming from the late 1980s, and taking a different perspective on the question of the nature of Mesopotamian reason, Jean Bottéro argued for a transfor-

⁵⁴ YOS 10 31 ii 38–41.

⁵⁵ YOS 10 31 ii 24–30.

⁵⁶ SAA 8 413:1.

⁵⁷ Goody 1977, 16 and see chapter 8 “The Grand Dichotomy Reconsidered”, 146–162.

⁵⁸ Cole and Cole 2006, 306. Reactions from anthropologists to the technological determinism of the literacy thesis appeared in Halverson, 1992 and Probst 1992.

mation in the development of omen divination from what he identified as *a posteriori* to *a priori* knowledge. Thus:

from an observation of a sequence of events that do not have any apparent link between them, but were noticed to have followed each other once, it was thought that such events would always follow one another. That is what we would call empiricism.⁵⁹

From this he concluded:

It is thus that divination passed from its primitive state of simple empirical observation to that of knowledge a priori, to 'deductive' knowledge. From the moment they discovered that a lion is the sign, the ideogram, of violence or of power, it became useless to 'wait for the events,' which would have been indispensable in an empirical system. They could foresee without fail brutality, carnage, or domination from the moment that they noticed the presence of a lion in an ominous circumstance. This was a capital transformation and of considerable importance: because, in fact, a knowledge a priori, deductive knowledge, is already the essential element of science.⁶⁰

Interestingly, sequential co-occurrences of the type that connects the sun setting and the cessation of bird song, or black clouds followed by a thunder storm, for example, were never grist for Babylonian diviners' mills. Such phenomena can be explained by empirical experience, as they are reliably and inherently interconnected. But the omens do not unite such pairs of events.

Analogical relationships, on the other hand, are numerous, for example, from a Neo-Assyrian Report: "If the Fish constellation stands next to the Raven constellation: fish and birds will become abundant."⁶¹ Or, from *Enūma Anu Enlil*: If the King star (= Regulus) carries a sheen: the king of Akkad will achieve overpowering strength."⁶² Other examples are perhaps not so obvious, but in such cases it is we who are hampered from 'getting' the connections that are there.⁶³ While we at this distance may not be capable of identifying the connective tissue between the ominous phenomenon and the correlated consequent in every case, empirical sightings of co-occurring events do not seem to me to be a plausible answer to the question of the aetiology of omens. Seeing the phenomena that signified events was obviously a basic and essential part of the practice of divination but it does not provide justification for interpreting a phenomenon as ominous. Many omens can be ac-

⁵⁹ Bottéro 1987, 132. This argument from empiricism in omens, and others who have said the same, is critiqued in Rochberg 2004, 265–271.

⁶⁰ Bottéro 1987, 134.

⁶¹ Hunger, SAA 8 73 rev. 1.

⁶² Reiner and Pingree, BPO 4 K. 3780 iv 5, 181.

⁶³ For examples of the kinds of connections drawn between the antecedent and consequent clauses of omens, see for *Šumma izbu*, see de Zorzi 2011 and for other Old Babylonian omens, in terms of the protosis-apodosis paradigmatic and syntagmatic relationships, see Winitzer 2006, *passim*.

counted for by the principle of analogy, or the use of the resemblance criterion, suggesting that argument by analogy, that is to say, argument from particular to particular, was essential in forging connections between phenomena in different domains. Reasoning by analogy can be classed either with inductive or deductive reasoning. It does not represent an inherently irrational cognitive process.⁶⁴

What was operative in Bottéro's analysis was the change from what he saw as a phase when the sequence of the events P and Q were observed, to a time when it was no longer necessary to observe such co-occurrences, because it would be known by deduction that Q followed P. In the changeover from justification by empiricism to justification by deduction, Bottéro identified the emergence of the scientific spirit, and therefore rationality, in cuneiform knowledge. But since we cannot show, or assume, that the Babylonians convinced themselves that Q was the result of P because every time they experienced P they experienced Q, we cannot reconstruct an imaginary inductive process by which the ancient diviners arrived at the idea that phenomena could therefore be ominous signs. I would argue that Babylonian divination was formally deductive, but it does not follow that such deduction was ever based in the inductive process, the 'arch of knowledge', so to speak, that progresses from induction to deduction. This is a flawed reconstruction that puts uncritical faith in induction as the beginnings of the scientific process, a reconstruction that does not explain how divination can be construed as continuous with science. The aetiology of cuneiform divination seems rather to lie in attention to particulars and their analogical relationships.⁶⁵

Bottéro judged deductive reasoning to be "what we call a science, in the proper and formal sense of the word, as it has been taught to us by the ancient Greek teachers, after Plato and Aristotle, and as it still in essence governs our own modern idea of science".⁶⁶ But he was willing only to grant to cuneiform texts the 'spirit' of science, for the actual content of cuneiform science he deemed "empty of all meaning, outdated and 'superstitious'".⁶⁷ The discovery of the 'scientific spirit' in ancient Mesopotamia was meant to show that the Greeks had learned and assimilated this 'scientific spirit,' born before them and in another country. ... it appeared in Mesopotamia more than fifteen centuries before Socrates, Plato, and Aristotle. Its birth and establishment cannot be observed better outside divination, a science which constitutes one of the most essential and typical characteristics of the ancient Mesopotamian civilization.⁶⁸

⁶⁴ Lloyd 1966 showed the importance of the analogical argument, and analogical reasoning, in Greek philosophy and literature from the earliest Greek literary sources down to Aristotle.

⁶⁵ For further discussion of these and other kinds of non-empirical relationships, see Winitzer 2011, *passim* and De Zorzi 2011.

⁶⁶ Bottéro 1992, 136.

⁶⁷ *Ibid.*

⁶⁸ *Ibid.* 136–137.

The Greeks, therefore, did not invent science, or at least the ‘scientific spirit’, which was anticipated already in ancient Mesopotamian divination. I am not entirely sure what Bottéro meant by disembodiment of the scientific spirit from science itself. It seems that what was implied was an inferiority about Babylonian divination as science, i.e., that it anticipated Greek science, but not very well, only in spirit.

While I differ from Bottéro’s position on Babylonian divination as superstition,⁶⁹ as well as from his thesis about empirical origins, I concur with his assessment of the deductive character of Assyro-Babylonian omen statements, and in the idea that logical consequence was characteristic, even fundamental, to the formulation of omen statements. The objective of my previous analysis⁷⁰ was to show that a fundamental element of classical rationality, the argument form known as *modus ponens*, was present in Assyro-Babylonian omen statements. Omens as given in the lists merely provide a series of cases that serve as a basis for knowing Q if P, or, put another way, what is indicated or implied by P. In effect, Q can be inferred from P on the basis of a written omen in a manner that, at least from a formal standpoint, follows the logic of indicative conditionals as follows: “If P, then Q. P: Therefore Q.” Babylonian omens, therefore, employed the most common rule of inference, that of *modus ponens*, generally taken to be deductive. Although reasoning deductively to conclusions is not the only form of rationality, if we are in the presence of deductive reasoning, as Bottéro suggested, are we not by definition in the presence of the rational?

The way the antecedent and consequent are connected in written omen compendia undoubtedly rests on a long background of textual and ideological development. However, an argument for cognitive change on the basis that only in later omen series were all sorts of connections $P \rightarrow Q$ added on grounds of resemblance, paranomasia, orthographic similarities or etymographical word plays puts the horse behind the cart. Resemblance and analogy were active in our earliest examples of written omens, as illustrated in an Old Babylonian astral omen:

[šumma šam]û uššu[šu š[a]ttum lemn[at]

If the heavens are troubled, the year will be unlucky.⁷¹

As already noted, a cognitive shift occurring somewhere between ‘empiricism’, based on the logical fallacy of *post hoc ergo propter hoc*, as Bottéro suggested, and logical consequence, i.e., rational prediction of Q from P, whether by analogy or not, is sheer supposition. I do not see evidence for *post hoc ergo propter hoc* reasoning in an imaginary beginning stage of divination, therefore no cognitive difference

⁶⁹ See Rochberg 2010, 24–25.

⁷⁰ Rochberg 2009.

⁷¹ Horowitz 2000, 203, ll. 1–2.

between an earlier and a later understanding of why phenomena were ominous, and therefore no shift from the irrational to the rational. The decision as to whether divination is rational or irrational should depend on whether one deems the use of its forms of reasoning to be appropriate or inappropriate to its own cultural and epistemic norms.

I turn now to the most recent effort to identify and define the rational in Babylonian science, Watson and Horowitz's *Writing Science Before the Greeks*, a study of the early first-millennium astronomical compendium entitled MUL.APIN, "Plough Star". Theirs is a study informed by cognitive science and committed to the idea of literacy as a universal engine of cognitive change. In a return to Larsen's approach to the question of a Babylonian rationality, they asked: "does writing make us rational?" and "must one be literate in order to be logical?"⁷² They posed the question of the cognitive effects of various kinds of texts and techniques of storing knowledge, such as in permanent archives. Resonant with Goody and Larsen, their model is of writing and conceptual change. In their formulation, writing "biases mental representation", which "may lead to the enhanced development of logic, or rationality".⁷³

Though Watson and Horowitz repudiate the idea of a primitive as opposed to a rational mind, their thesis that writing stimulates cognitive change toward rationality, is inherently progressive. They state in their conclusion that "the treatise has an historical-cumulative aspect",⁷⁴ so that, like archaeological strata, the text of MUL.APIN reveals increasingly complex and sophisticated modes of reasoning from the lowest and chronologically oldest level of simple lists to the appearance in the highest and chronologically latest level of what they read as an axiomatic statement. In their words, "the conceptual content of the later portions of MUL.APIN is of a higher order, and more abstract, than that of the earlier part".⁷⁵ Whether the inherent progressiveness of their thesis about MUL.APIN is derived from a commitment to the notion of human history being one of continuous cognitive transformation, along the lines of Gellner's "unfolding of rationality",⁷⁶ is not explicit, but perhaps implicit, as the idea of writing as an agent of cognitive change "for the better", i.e., toward logic and rationality, is central to their analysis.

Representing the oldest lowermost stratum is the first section of the text, MUL.APIN I i 1–ii 35 (their section a). This is a catalogue of seventy-one stars divided into three celestial roads (*harrānu*), named for the three highest cosmic gods Enlil, Anu, and Ea, as they are distributed from north to south marking arcs of rising and setting stars (and planets) along the eastern horizon. The names of the

⁷² Watson and Horowitz 2011, 25.

⁷³ *Ibid.* 44.

⁷⁴ *Ibid.* 140.

⁷⁵ *Ibid.* 155.

⁷⁶ Gellner 1988, 39.

stars are given together with their divine names (such as The Great Twins, Lugalgira and Meslamtaea, or The Panther, Nergal) or otherwise descriptive notes as to who they are (“messenger of Ninlil”, “seeder of the plough” and the like) and where they stand in relation to nearby stars. As illustration, MUL.APIN I i 12–19:

ŠU.PA, Enlil, who decrees the fate of the land.

The star which stands in front of it: the Abundant One, the messenger of Ninlil.

The star which stands behind it: the Star of Dignity, the messenger of Tišpak.

The Wagon, Ninlil.

The star which stands in the cart-pole of the Wagon: The Fox, Erra, the strong one among the gods.

The star which stands in front of the Wagon: the Ewe, Aya.

The Hitched Yoke: the great Anu of heaven.

A wealth of information is built into the star catalogue, most striking of which is the Sumero-Akkadian cultural underpinnings in the equivalences between stars and gods, and the importance of agriculture, seen in the references to the field, the plough, the yoke, the seeder of the plough, wagon, furrow, harrow, ear of grain, to the domesticated animals, pig, ewe, horse, bull, rooster, and the animals of the wild, lion, panther, stag, scorpion, eagle, raven, snake and swallow. In accordance with Watson and Horowitz’s archaeology of knowledge, the star names themselves evoke a much earlier period than that which saw the composition of the text.

At the other end, representing the uppermost stratum of the text in their analysis, is section L (MUL.APIN II ii 43–II iii 15), containing a list of values for the length of night and the derived duration of the moon’s visibility at night throughout the year. Their assessment of section L is that it represents “the most purely abstract form of expression in the entire treatise.”⁷⁷ Section L may be described as a condensed list of values corresponding to those found tabulated in the scheme for calculating lunar visibility in the omen series, EAE (*Enūma Anu Enlil*) Tablet 14. MUL.APIN, the Astrolabes, and EAE 14 all share the same scheme for calculating length of daylight (or night). Section L summarizes the important parts of the lunar visibility scheme, but whether the data can be described as abstract can be questioned; they are the same data tabulated in EAE 14. Watson and Horowitz have indirectly raised a fundamental question about how to understand such numbers, as abstract or concrete representations. In his study of astronomical procedure texts, Mathieu Ossendrijver classified this section of MUL.APIN with instructional texts, indeed as the first of such astronomical procedural texts that entail computation.⁷⁸ From that point of view, the numbers would seem to function as concrete representations of lunar visibility times, derived in schematic fashion from the rules of the table.

⁷⁷ Watson and Horowitz 2011, 117.

⁷⁸ Ossendrijver 2012, 16 and n. 90.

Lastly, special rhetorical status is given to the conclusion of section L: “The summary statement”, they said, “is distinguished from those of other sections, in that it opens with a formally-expressed axiom.”⁷⁹ The line in question is MUL.APIN II iii 13: “4 is the coefficient for the visibility of the moon.” The statement gives the coefficient, or multiplicative factor, for finding the duration of lunar visibility at night throughout the year, and is derived directly from the particular scheme that underlies the section as a whole. The scheme for lunar visibility assumes that the moon will be visible for 1/15 of the length of night ($4 = 1/15$ in the sexagesimal system, as $60 \div 4 = 15$), and the length of night changes with the month. As an example: For the equinoctial months in which the length of night is equal to 3,0 (or 180 degrees, half of one day circle), the factor to calculate lunar visibility is 12 ($12 = 1/15 \times 180$). Section L lists all the values for daylight length per month followed by the values to calculate duration of the moon’s visibility. The numerical description of the increase and decrease of lunar visibility over the course of the entire schematic year is the goal. The model represents the daily behavior of the moon in the schematic (30 day) month, that is, in the first half of the month one sees the moon earlier each day, and for an increasing amount each day, from the thin crescent at sunset at the beginning of the month to the moon’s visibility all night at full moon (day 15) when it rises with sunset and sets with sunrise. Then, decreasingly from full moon to its final disappearance, it is visible later and later and for a briefer length of time each night until one sees its final crescent appearance briefly just before sunrise. The values for these lengths of lunar visibility are all calculated by the coefficient 4, i.e., 1/15 of night length. Reference to the value 4 in line 13 extracts the factor used in the scheme. MUL.APIN II iii 13, I would suggest, does not state a self-evident or necessary truth, or some other kind of established or universally accepted principle, which is to say it cannot serve as an axiom or a first principle, but rather it is itself a derivative, thus automatically disqualifying the statement in II iii 13 as axiomatic.

Not only is section L consistent with Tablet 14 of the omen series *Enūma Anu Enlil*, but what follows, MUL.APIN II iii 16–iv 12 (section m), the closing section of the text, consists of a section of omens. The omens present a problematic endpoint for Watson and Horowitz’s progressive historical-cumulative interpretation of the text as a whole. They suggest that the section was added by the astronomers “to justify the practical value of their work”, the implication being that the astronomers viewed omens as “applied astronomy”, i.e., in a lesser light than the rest of MUL.APIN.⁸⁰

Watson and Horowitz’s interpretation of MUL.APIN as a stratigraphic map of cognitive-historical progress is an interesting one, however the evolutionary scheme from list to axiom and thereby from a lower form of cognitive engagement

⁷⁹ Watson and Horowitz 2011, 116.

⁸⁰ *Ibid.* 122.

with the world to a higher one is compromised once the axiomatic status of the Section L's conclusion is questioned. Although the primitive stage they identify in the star catalogue, in which the stars, constellations, and planets were named for gods in the context of activities for which those gods were known, doubtless reaches far back into pre-literate times, the names of the stars were current and still practical throughout the 1st millennium despite such early origins. Given this, and the fact that the list remained a favored form in cuneiform scholarship (lexical lists, omens, mathematical and astronomical tables) it seems difficult to correlate the star names in MUL.APIN's star list with a historical-cognitive stage.

In giving lists of the Enlil, Anu, and Ea stars, simultaneous risings and settings, and so on, MUL.APIN mapped the sky and the celestial phenomena necessary for the practice of celestial divination. That the ideal calendar of MUL.APIN is also consistent with *Enūma Anu Enlil*, points to the intimate connection between the two series and suggests that the creation of MUL.APIN was not intended as a disinterested description of 'natural phenomena', but as an account of the elements necessary for use of the series *Enūma Anu Enlil*. As such its content is wholly consistent with that of celestial divination. This has already been observed and well explicated by David Brown.⁸¹ MUL.APIN presents a practical astronomy for celestial divination, whose general attitude about heavenly phenomena it shared, namely that these were the significant celestial bodies one needed to know, because the gods made them to signal events in the future. It was moreover desirable from a divinatory standpoint to identify periodic phenomena and devise convenient ways of predicting them by numerical schemes, as seen in section L (MUL.APIN II ii 43–II iii 15).⁸²

4 Correspondences and properties

I turn now to Dodds' second form of irrational belief, mentioned briefly above, namely, the "theory of occult properties or forces immanent in certain animals, plants, and precious stones".⁸³ It is critically important to note that, as Nicolas Weill-Parot said, "the history of occult properties is ... strictly linked to the history of the concept of nature".⁸⁴ If indeed the conception of nature is essential to the very idea of occult qualities, the occult becomes a category ill-fitted within the cuneiform system of knowledge.

⁸¹ Brown 2000, 113–122.

⁸² See Brack-Bernsen 2005 for a discussion of the use of MUL.APIN for astronomical calculation and the idea that the MUL.APIN schemes constituted "methods of astronomical modeling of nature".

⁸³ Dodds 1951, 246.

⁸⁴ See Weill-Parot 2010, 205.

Dodds attributed magic, divination, and medical practice to the paradoxographer Bolos (ca. 250–115 BCE), from Mendes in the Egyptian delta, judging his works “fatally attractive to the Stoics, who already conceived the cosmos as an organism whose parts had community of experience (*sympatheia*)”.⁸⁵ The *Suda* called Bolos a Democritean and the Mendesian Pythagorean, and ascribed to him, as enumerated by B. Hallum “the following (lost) works: *Scientific Inquiry and Medical Art*; ... *Concerning Wonders*; *Naturally Potent* [drugs?]; *On Sympathies and Antipathies* (the *Suda*^{sic} adds *of Stones*, probably the vestige of another title); and *On Signs from the Sun, Moon, Ursa Maior, Lamps and the Rainbow*.”⁸⁶ These objects of knowledge in the Greco-Egyptian milieu had a distinguished epistemic kinship with, if not ancestry in, *ṭupšarrūtu*, ‘the art of the (cuneiform) scribe’, more specifically *āšipūtu* ‘the art of the medical conjuror/or incantation priest’, which addressed itself in no small measure to the relational properties of phenomena. Cuneiform parallels that have to do with correspondences and properties testify to an important context of the rational, not the irrational, in cuneiform knowledge, because analogical reasoning, among other cognitive strategies, worked within normative standards for relating the particulars of phenomena in various meaningful ways.

The principal components of the cuneiform pharmacopeia were derived from animal products, plants, stones, and woods.⁸⁷ Explicit mention of plants, stones, and wood as categories of substances with healing properties is found in the following procedural statement from a late Babylonian explanatory tablet:

When you make (a medical treatment of) plant (medicinal herb), stone (bead), and wood (for fumigation), and the art of the healing profession for the sick man – one does (it) in accord with its explanatory comment^(?).⁸⁸

Another procedural statement from a late natal astrological text is parallel:

stone (bead), plant (medicinal herb), and wood (for fumigation), the animal(s) of 13 and 4,37 (= 277) when you take each together, stone, plant and wood for the sick man, you smear (on him), feed him (the medicine), and fumigate him.⁸⁹

This second example contains reference to two numerical schemes employed in late Babylonian astrology in order to increase the connections that could be made between dates in the year, positions in the zodiac, and *materia medica* appropriate

⁸⁵ Dodds 1951, 247.

⁸⁶ Hallum 2008, 196–197.

⁸⁷ See Heeßel 2008 and 2005.

⁸⁸ *ki-i Ū NA₄ u GIŠ ù¹⁴ maš-maš-ù-tu a-na GIG tel-pu-šú it-ti ši-ti-šú e-pu-uš* BM 34035: 38–39, cited Livingstone 2007, 73. Livingstone takes *šitu* as the singular of *šātu* “explanatory word list(s) (always in the plural)”, which seems to be the only likely reading.

⁸⁹ *NA₄ Ū u GIŠ ú-ma-mu šá 13 ù 4,37 KI a-ha-meš DAB-bat NA₄ Ū u GIŠ ana LÚ.GIG ŠÉŠ KÚ-šú u tu-qat-tar-šú* LBAT 1593 obv. 17’–18’, see Reiner 2000, 422.

to a person afflicted when those dates or positions were relevant. These are the *dodecatemoria* scheme (to advance in steps of 13 around the zodiacal signs⁹⁰) and the *Kalendertexte* scheme (to advance in steps of 277).⁹¹

Exploration of the efficacy of animal, plant, and mineral matter was a long-standing tradition among Babylonian and Assyrian practitioners of medicine, the *āšīpu*, *mašmaššu*, and *asû*. These scribes regarded the technical knowledge of their profession as of antediluvian origin, according to the following colophon from a text giving treatments for afflictions of the head, nose, and ears:

Proven and tested salves and poultices, excerpted from the lists, after an oral tradition from the ancient sages from before the Flood, which in the second year of Enlil-bani, King of Isin (1860–1837 BCE) Enlil-muballit, sage of Nippur, deposited (lit. “left”) in Shuruppak.⁹²

The practice of the *āšīpu*, *mašmaššu*, and *asû* utilized several means for relief: the preparation of salves to smear and rub on (ŠĒŠ = *pašāšu*) affected parts, mixtures to be ingested (KŪ = *akālu*), as well as the use of efficacious stone beads strung (*šakāku*) onto threads twined together of various substances (wool, gazelle tendon, goat hair, the stem-like leaves of the rush plant) to be bound onto painful body parts, as in the following example:

[If a man ...] is seized and has chronic *sagkidabbû* (literally, “that seizes the temples”, probably migraine): beads of silver, gold, carnelian, [...] SAG.DU-stone, *muššaru*-stone, *hulālu*-stone, *pappardilû*-stone, ... male and female ŠU-stone, *saggilmut*-stone, [...] iron, *ajartu*-shell with 7 spots, *janibu*-stone, and *kapāšu*-shell. These beads you string on (twine made of) virgin she goat hair, gazelle tendon, and male *ašlu*-rush that you wind together.⁹³

The use of strings of “stones”, that is beads made of substances including metals, shell, and semi-precious or other stones with properties to effect healing was a staple of Babylonian medical procedure. Recitation of incantations was used together with administering salves for the removal or assuagement of the anger of an agent of pain, disease, or distress, meaning a god, demon, ghost, or sorcerer/sorceress, regarded as the cause. From the same prescription for migraine cited above, thus:

⁹⁰ See Neugebauer and Sachs 1952–1953, 65–66.

⁹¹ Reiner suggested that *umāmu* “animal” in LBAT 1593: 17', referred to the animals of the zodiacal signs, *ibid.*, 424.

⁹² [na]p-šá-^rla-^{tú} ^rtak-^{ši-ra-nu} lat-ku-tu₄ ba-ru-ti šá ana ŠU šu-šú-ú šá KA ABGAL.MEŠ-e la-bi-ru-ti šá la-am A.MÁ.URU₅ šá ana Šuruppak^{KI} MU.2.KÁM ^{Id}EN.LÍL-ba-ni LUGAL ^{URU} ĩ-ši-in^{KI} ^{Id}EN.LÍL-mu-bal-liṭ ABGAL EN.LÍL^{KI} ^rez-bu AMT 105, ll. 21–24, also Hunger, 1968, no. 533.

⁹³ [DIŠ NA] DAB-su ina SAG.KI.DAB.BA TUK.TUK-ši NA₄ KŪ.BABBAR NA₄ KŪ.GI NA₄ GUG [...] NA₄ MUŠ.GÍR NA₄ SAG.DU NA₄ NÍR NA₄ BABBAR.DIL NA₄ ZALAG₂ NA₄ MU.ZA [...] NA₄ ŠUBA NA₄ ZŪ.GI₆ NA₄ ŠU.I NITA₂ u MUNUS NA₄ SAG.GIL.MUT [...] ... NA₄ AN.BAR NA₄ PA šá 7 GŪN.MEŠ-šá NA₄ ia₂-ni-bu NA₄ ka-pa-šu [NA₄.HI.A] an-nu-ti ina SÍG ^{munus}ÁŠ.GÀR GÍŠ NU.ZU SA MAŠ.DÀ Ú NINNI₅ NITA₂ [...] È-ak AMT 102: 20–25, and see Schuster-Brandis, 2008, 133.

If *sagkidabbû* disease (lit. “that seizes the forehead”), (or) *šugidimmakkû* (“hand-of-a-ghost”)-disease, persists in a man’s body, and won’t let go, and does not stop with treatments by compress or conjuration, slaughter a caged goose, take its blood, its windpipe, gullet, fat, hide, the outer part of its gizzard, and char them in the fire, mix it with cedar resin and recite the incantation “Evil finger of man” three times. Apply the ointment to his head, his hands, and wherever it hurts him and he will be soothed.⁹⁴

The quintessence of the Babylonian version of Dodds’ second irrational theory wherein animals, plants, and stones were utilized for their inherent properties can be seen in a variety of late astrological texts from Babylon and Uruk dating roughly from the 5th to the 2nd centuries BCE. Some have been termed *Kalendertexte* because of the ideal 360-day calendrical schemes that enabled the association of positions and dates of the 12 zodiacal signs or 12 months, and 30 degrees or 30 days within the ideal calendar year of 360 days.⁹⁵ These texts make use of numerical schemes, mentioned before, from which one obtained a further position in the ecliptic from an initial position, one method projected positions separated by 13 degrees (*dodecatemoria* scheme) and the other by 277 degrees (*Kalendertexte* scheme).⁹⁶ Characteristic of late astral medical texts is the association of maladies, or their treatments, with zodiacal signs (BRM 4 19 and 20, LBAT 1626, SpTU V 243, and BM 56606 rev.).⁹⁷ BM 56606 rev. col. i details the particular stone, wood, and plant that correspond to the zodiacal signs⁹⁸:

1. In Aries the stone is *zânu*-stone, the plant is *imhur-lîmu* (literally, “(the plant that) counteracts one thousand [diseases]”), on the 20th day of *Nisannu* you should not eat fish and leeks.

⁹⁴ *šum-ma* SAG.KI.DIB.BA ŠU.GIDIM.MA ina SU NA it-ta-za-az-ma NU DU₈ ina IGI ši-in-dî ù ÊN NU TAR-as KUR.GI MUŠEN bu-û-ra ta-ta-ba-ah MÚD-šu ur-us-su mu-še-rit-ta-šú Ī.UDU-šú ù qi-il-pa šá pi-sur-ri-šú TI-qé ina IZI TUR-ár ana ŠĀ MÚD GIŠ.EREN HI.HI-ma ÊN ŠU.SI HUL.GÁL NAM.LÚ.U₁₈. LU.KE₄ 3-šú ŠID-nu [SAG.DU]-su ŠU^{II}.MEŠ-šú ù mimma ma-la TAG-šú TAG.MEŠ-ma i-na-a-ah AMT 102, ll. 1–6.

⁹⁵ Examples can be found in VAT 7815 and 7816, see Weidner 1967, 41–52; K 11151, *ibid.*, 39–40 and Tf. 17; W 20030/133, see Hunger 1974, 43, with numbers alone; LBAT 1586 and 1587, Hunger 1974, numbers alone; BM 96258 and BM 96293, see Brack-Bernsen and Steele 2004, 96–97, only numbers; BM 36995, see Brack-Bernsen and Steele, *ibid.*, 98–99, n. 3, only numbers; LBAT 1593, see Reiner 2000, also mentioned in Boiy 2004, 27; the Uruk tablets von Weiher SpTU III 104/W 22704 (Month IV) and SpTU105/W 22619/6 + 22554/26 (Month VIII) and W 20030/127 (Month II) see Hunger 1971 and Oelsner 2000. Other related sources include BM 36326 where the *dodecatemoria* scheme is put into the same format as the *Kalendertexte* scheme, BM 47851, which has both schemes (Hunger 1996).

⁹⁶ These texts and their number schemes are explicated in Brack-Bernsen and Steele 2004. See also Hunger and Pingree 1999, 29–30.

⁹⁷ Edited in Geller 2010, 54–56. See also Texts 55 and 56 in Finkel 2000, 212–217, that assign the application of stone in a particular oil, a plant to be ingested in a particular liquid, and a colored wool to tie on an amulet according to the month (Text 55), and the application of stones, plants, and woods to certain days of the month (Text 56).

⁹⁸ Translated by Geller 2010, 78.

2. Pleiades: the stone (is) ..., the wood is *e'ru*, the plant is *barirātu*, on the first day of Ajaru do not clean faeces.
3. Capricorn: the stone (is) carnelian, the wood is *suādu*, the plant is *kamkadu*, you should not drink milk on the 15th day of *Simānu*.
4. Cancer: the stone is *apsû*, the wood is šennur, the plant is pomegranate, you should not dry out latrine water.

The idea of a correspondence between human life and the stars was not new to the late period, nor was the idea of the efficacy of the stars in healing, or the idea of medical treatment in accordance with calendar days, such as is illustrated by the Neo-Assyrian period text STT 300,⁹⁹ or an explicit day in the lunar month. An entry in the Standard Babylonian plant compendium *Šammu šikinšu* testifies to an early version of this latter idea, also attested at Sultantepe:

The plant whose appearance is like (that of) the *kūru*-reed, whose leav[es] are like the leaves of the canebrake-fig, [whose x is like (that of) le]jek, whose pitch (lit. 'blood') is as dark as (that of) the carob-tree xxx [that plant] is called [*sikillu*-plant?]; it is good for dispelling witchcraft. [(To be applied) by cle]aning the (bewitched) person's f[ac]e (with it) on the day of the moon's disappearance.¹⁰⁰

But once the traditional schemata and relationships typical of celestial omens began to incorporate zodiacal signs and months, the human body, and other domains of phenomena, new systems of correspondence were developed in the late period.¹⁰¹

To aid in making correspondences among the elements of astral medicine were the numerical and calendrical schemes of the *dodecatemoria* and the *Kalender-texte*. Some examples of texts that correlated zodiacal signs with plants, wood, and stones (for amulets or beads), temples and place names, made use of these quantitative schemes, such as the much discussed texts of Iqīša, the *mašmaššu*, in fourth-century Uruk (quoted above). Related is LBAT 1593, a natal astrological text that assigns characteristic features to the native born in various zodiacal signs (line 2' "Region of Libra ... narrow of forehead"), and predicts the gender of the child born when a particular planet is present in the place of the moon, or predicts that twins will be born, as in line 9': "Because Mars stands in Gemini with [or at the place of the] moon, twins will be born."¹⁰²

Iqīša's tablets, as Reiner said, "assign to each of the calendar dates an ointment whose ingredients are related to the zodiacal sign by a pun, either linguistic

⁹⁹ See Scurlock 2005–2006.

¹⁰⁰ *Šammu šikinšu* Text I, Source A (= STT 93), ll. 43'–45' paragraph 18' in Stadhouders 2011 and 2012, 3 for translation.

¹⁰¹ Notable examples are LBAT 1596–1598, BRM 4 19 and 20, K 11151 +, see Heeßel 2005 and 2008 and Geller 2010.

¹⁰² Reiner 2000, 424.

or purely orthographic, on the name of the sign”.¹⁰³ SpTU 3,104, which covers Month IV begins with the first day of that month and the first sign of the zodiac Aries with its position, correlated with the blood, fat, and wool from a sheep, to be used to anoint the patient. Capricorn is next, correlated with the blood, fat, and hair of a goat.¹⁰⁴

Compilations of the items belonging to the known elements of a corpus of *ma-teria medica*, the stones and plants in particular, are known from long before the Hellenistic period, including the texts *Šammu šikinšu* “The Plant, its appearance”, and *Abnu šikinšu* “The Stone, its appearance”,¹⁰⁵ which themselves have relationships to other compilations, such as *Uruanna = maštakal* and *Ur₅-ra = hubullu* (Tablet 16 on stones and Tablet 17 on plants¹⁰⁶). But what emerges in the late period, as Reiner pointed out,¹⁰⁷ are the correspondences in some of the *Kalendertexte* between calendar dates and medical preparations based either in linguistic or purely orthographic associations between the names of the medical ingredients in the preparation on one hand and a zodiacal sign on the other. Such analogies used to forge a correspondence between entities in the world such as plants and stones and the signs of the zodiac manifest a continuation of the same kind of reasoning that assigned elements of signs and their consequents in omens and commented texts. The aim was to relate the particulars of phenomena and multiply correspondences among the many particularities that represented significant elements of the world. In the astral medicine of the late period these particulars encompassed human beings, substances such as stone, wood, and plant, gods, zodiacal signs, stars, planets, and the moon.

The *Kalendertexte* epitomize a method that relates traditional scholarly knowledge concerning the stones, plants, and animals of the Babylonian pharmacopeia with astronomical number schemata, the zodiac and the ideal calendar. The number schemes seem to function as techniques for creating multiple correspondences. The particulars of these various parts of the world were interconnected, to be drawn together in a variety of correlations and correspondences, one essential component of which was correlation by analogy. Nils Heeßel not only established that the “stone, plant, and wood” system of astral medicine was an entirely new method of medical practice to be dated from the end of the 5th century (the reign

103 Reiner 1995, 116.

104 See the contents of the text laid out in tabular form in Steele 2011, 337.

105 I do not take *šiknu* / *šikinšu* to mean “nature / its nature”, with connotations of Greek *phusis*. See the CAD s. v. *šiknu* A, whose principal meaning is “outward appearance, shape, structure”, and is said of the façade of a house, the appearance and surfaces of divine statues (gone dull), of stones, plants, animals, the human facial features, parts of the exta (presumably in the description of ominous features), and even the extent of an eclipse (again, a feature of its appearance).

106 See MSL 10, edited Landsberger, Reiner & Civil 1970.

107 Reiner 1995, 115–116.

of Xerxes, 485 BCE),¹⁰⁸ but he also read the development as an important marker of a fundamental epistemic and ontological change:

Diese neuen Behandlungsmethoden verweisen auf eine andere, stark veränderte Wahrnehmung der Natur und ihrer Wirkungsweise. Erklären lassen sich diese Neuerungen, die in dem System von ‚Stein, Pflanze und Holz‘ zum Vorschein kommen, wenn man annimmt, daß sich die babylonischen Gelehrten alle Dinge der Natur durch ein (unsichtbares) Gewebe aus Sympathien und Antipathien untereinander verbunden vorgestellt haben. Allen Dingen, seien es Steine, Pflanzen, Hölzer, Lehm, Metalle oder menschliche Bauwerke wie Tempel und Straßen eignen demnach bestimmte Eigenschaften, Qualitäten, die andere Dinge wiederum anziehen oder abstoßen. Alles ist durchdrungen von einem Netz von gegenseitigen Abhängigkeiten, von Sympathien und Antipathien.¹⁰⁹

The system of relating the component elements of medical preparations (plant, stone, wood) to zodiacal signs, planets, or dates in the schematic year was as potentially accessible in the 2nd century BCE to Greek-speaking Hellenistic scholars as the rest of Babylonian “*astrologia*” (astronomy and astrology), though the specifics of transmission are as usual elusive. Dodds did not pin the new irrationality about stones, plants and the stars directly onto the Babylonians, but the general sense is that this “magical” thinking, which had as its authority figures Pythagoras, Zoroaster, and Petosiris (the fictive Egyptian priest associated with Babylonian-style astral omens as well as knowledge of the healing properties of plants and stones), rather than logic, was part of the Eastern intellectual legacy.¹¹⁰

Ancient authors made the connection to the East. Pliny, in NH 37.169, noted that “Zachalias of Babylon, in the volumes which he dedicates to King Mithridates, attributes man’s destiny to the influence of precious stones”. Pliny’s Zachalias might be connected to the scholar mentioned by the Greek physician Archigenes of Apameia in the late 1st to early 2nd century CE as knowing about the properties of jasper. The attribution is preserved only in a tertiary Byzantine account by Alexander of Tralles, who said that, according to Archigenes, Zachalias commented on amulets for the treatment of epilepsy.¹¹¹ Pliny attributed knowledge of the properties of stones to another Babylonian called Sudines, who was also mentioned by Strabo as a Babylonian *mathematikos* alongside Kidinas (possibly the astronomer *Kidinnu*) and Naburianus (possibly the astronomer *Nabû-rimanni*). Pliny called Sudines a Chaldean astrologer and said he had special knowledge of stones (making reference to onyx, rock-crystal, amber, *nilios*, and pearls).¹¹² Polyaeus also cites Sudines as a diviner for King Attalos I of Pergamon.¹¹³ These late attributions may

¹⁰⁸ Heeßel 2005, 19.

¹⁰⁹ Ibid. 16–17.

¹¹⁰ Ibid. 18 and nn. 35–37 for further references.

¹¹¹ See Scarborough 2008 and Reed 2008.

¹¹² See Rochberg 2008, 767–768.

¹¹³ Ibid.

not be historically verifiable from cuneiform texts, but they gain support from the general features of the late Babylonian astral medical culture.

Finally, it is interesting to note a further echo of the Babylonian practice of applying astral correspondences with medical practice in Greek sources, namely, as pointed out by Alan Bowen and Bernard Goldstein, by considering the *parapegmata*, whose premise was to establish correspondences between cyclically recurring astral and meteorological events, in the same intellectual contexts as a number of Hippocratic texts. In reference to four late fifth-century BCE Hippocratic texts, they noted that:

these texts draw on the same conceptual framework as the *parapegmata*: both types of literature manifest that broadly Mediterranean view that order in Nature is not one of natures or natured things (as construed by Plato and Aristotle, for example) *but one of the periodic correlation or conjunction of events*. In other words, both rely on astral omens connecting stellar and meteorological events; and both suppose that these omens are useful in deciding what to do, since the connections and what follows are periodic.”¹¹⁴

5 Analogical reasoning and magic

Assyrian and Babylonian divinatory, astrological, magical and medical texts that characteristically deal in correspondences and properties testify to an important context of the *rational* in cuneiform science. If we consider the internal standards of this material and its evident aims, it is clear that analogical reasoning, among other cognitive strategies, including deductive inference, worked within the framework of divination to relate and correlate the particulars of phenomena in various meaningful ways. While the content of the cuneiform sciences changed over time, from the 7th to the 3rd centuries BCE and later, analogical reasoning remained a consistent feature of the material over time. The argument for cuneiform sciences as contexts of rationality, therefore, is that reasoning by analogy, that is to say, from particular to particular, was a primary and essential way to forge connections between phenomena in different domains. Analogical reasoning, as defined in the *Stanford Encyclopedia of Philosophy*,

is any type of thinking that relies upon an analogy. An *analogical argument* is an explicit representation of a form of analogical reasoning that cites accepted similarities between two systems to support the conclusion that some further similarity exists. In general (but not always), such arguments belong in the category of inductive reasoning, since their conclusions do not follow with certainty but are only supported with varying degrees of strength. Here, ‘inductive reasoning’ is used in a broad sense that includes all inferential processes that “expand knowledge in the face of uncertainty” (Holland et al. 1986: 1) ... Analogical reasoning is

¹¹⁴ Bowen and Goldstein 1988, 75, my emphasis.

fundamental to human thought ... Historically, analogical reasoning has played an important, but sometimes mysterious, role in a wide range of problem-solving contexts. The explicit use of analogical arguments, since antiquity, has been a distinctive feature of scientific, philosophical and legal reasoning.¹¹⁵

Of all the things that happen in sequence, why two particular events might be seen or experienced as connected can be explained in different ways. Such connections may have nothing to do with empirical reasoning or physical causality, yet in analyzing Babylonian divination and its relation to science, the tendency has been to try to find an empirical connection at some initial point in its development, as did Bottéro, discussed before.

Connections were made between many ominous signs and their anticipated events where the connective tissue between them could be based on orthographies, homophony, or analogy between key words in the protasis and apodosis. Polarities were also effective, such as the positive and negative associations attributed to right and left, dark and light, and so on. As suggested by the use of the 13 × and the 277 × schemes, additional techniques could propagate other values, positions in the zodiac, or dates in the ideal year to be combined and correlated with various elements in new systems of astrology and astral medicine. Signs of a physical causal relationship – such as the omen predicting rain from a solar halo¹¹⁶ – were rarely a part of divinatory texts, whose focus was not commensurate with our search for physical causal relationships. And yet, as evidenced by the consistent application of analogies not only to structure omens but also to explain the meanings of omens in commented texts, observations aimed at finding relationships between many kinds of phenomena in heaven and on earth created a different normative standard as to what constituted knowledge and understanding of phenomena.

Stich noted that “a common theme in the research on human inference is that people are inclined to overextend the domain of an inferential strategy, applying it to cases where it is normatively inappropriate.”¹¹⁷ Normative inappropriateness is, of course, the definition of the irrational. But deciding what is normatively appropriate or not depends on one’s point of view. Stich was interested in inference strategies used to make a judgment or a decision about the likelihood of an event. Where similarity between events is used as a way to judge the likelihood of occurrence, psychologists devised the term ‘representativeness’, and its use in decision-making or prediction as the ‘representativeness heuristic’.

115 Note that emphasis is in the original. “Analogy and Analogical Reasoning,” The Stanford Encyclopedia of Philosophy (Winter 2013 Edition), Edward N. Zalta (ed.), URL <http://plato.stanford.edu/entries/reasoning-analogy/>. See also John D. Norton, <http://www.pitt.edu/~jdnorton/papers/Analogy.pdf>.

116 See n. 56.

117 Stich 1985, 126.

Although in the following passage Richard E. Nisbett and Lee Ross appealed too much to the ideas of primitive otherness, magical thinking, and pre-science, using Zande culture as the default and exemplary Other, it is nonetheless interesting to consider in the light of Babylonian divination and medicine what they had to say:¹¹⁸

People have strong *a priori* notions of the types of causes that ought to be linked to particular types of events, and the simple ‘resemblance criterion’ often figures heavily in such notions. Thus, people believe that great events ought to have great causes, complex events ought to have complex causes, and emotionally relevant events ought to have emotionally relevant causes ... The resemblance criterion is transparently operative in the magical thinking of pre-scientific cultures. For example Evans-Prichard (sic) ... reported such Azande beliefs as the theory that fowl excrement was a cure for ringworm and the theory that burnt skull of red bush-monkey was an effective treatment for epilepsy. Westerners unacquainted with Azande ecology might be tempted to guess that such treatments were the product of trial and error or laboriously accumulated folk wisdom. Unfortunately, the truth is probably less flattering to Azande medical science. Fowl excrement resembles ringworm infection; the jerky frenetic movements of the bush-monkey resemble the convulsive movements that occur during an epileptic seizure.¹¹⁹

Referring to Nisbett and Ross’s statement, Stich takes the Azande’s use of the ‘representativeness heuristic’ to be inappropriate to the domain in which it is applied. It is by his reckoning irrational, because a treatment for illness based on the resemblance between the affliction and the cure is “an extreme example of the overextension of an inferential strategy”.¹²⁰ It seems to me, however, that if the grounds for an inference scheme are not equivalent to those of modern science, as in Zande medicine, or Babylonian divination (and medicine), and do not operate with or require the methods of naturalism, then the charge of irrationality is categorically wrong and historically anachronistic.

What the psychologists refer to as the resemblance criterion is in fact the crux of analogy, which draws a meaningful connection by associating two things, the analogue and the target, that are not alike in other respects, such as in the Old Babylonian gall bladder omens cited above, where the analogy is made between water in the gall bladder and the flooding of the river, or between the arrangement of the gall bladder and the ‘finger’ and that between the king and his enemy. Of course these kinds of connections can be multiplied and many examples tallied, as has been done with respect to some omen text series.¹²¹ This seems to me a fair description of the kind of reasoning at the heart of Babylonian divination, as well as some of the lexical lists built up through semantic and phonological associa-

118 G. E. R. Lloyd already noted the importance of analogy in Zande ideas about disease and treatment by magical means in 1966, 177–179.

119 Nisbett and Ross 1980, 115–116, apud Stich 1985, 126.

120 Stich 1985, 126.

121 See De Zorzi 2011.

tions within the cuneiform writing system and which provide sometimes quite imaginative alternatives for writing words, as in the lexical lists Antagal and Diri or in commentaries such as I.NAM.GIŠ.HUR.AN.KI.A. Alisdair Livingstone already noted the propensity of the cuneiform scribes for juxtapositions of related words or ideas as a fundamental of scribal methodology:

The explanatory works exhibit characteristics typical of many other genres of Babylonian scholarly literature. It was usual for almost every type of information to be summarized and recorded by listing pairs of associated items, arranged in columns. This technique acquired specialized conventions appropriate to the particular subject matter involved. The principle of expressing information by simple juxtaposition is so universal in the literature that it is sometimes necessary to raise the question of the extent to which the actual thinking of the ancient scholars was influenced by this aspect of their practical methodology.¹²²

It is also possible to see the listing of juxtaposing pairs not as a technique giving rise to but rather the outcome of analogical reasoning. Listed pairs of associated items are certainly descriptive of omen texts, thus providing a ready structure for the juxtaposition of analogous (or opposing, or other) relationships. As has often been noted by those who study Assyro-Babylonian omen texts, the multivalence of cuneiform writing due to its polysemy and polyphony is another aspect that lent itself to the method of analogical reasoning with respect to words, objects, and phenomena. The analogy between the reddish colored lunar eclipse and the death of a ruler is found in *Enūma Anu Enlil*, but in parallel with the omen is the writing of the Akkadian word *attalū* “eclipse” given in the list Antagal, namely, the compound *ud.mud.nun.na.ki*, explained as *ūmu da’mu ša rubī* “the day of blood for the prince”.¹²³ This is a clear analogy between the blood red color of a lunar eclipse and the blood of the ruler, whose death is presaged by an eclipse. It might also be noted that NUN can refer both to the earthly prince (*rubū*), or to the moon-god himself, sometimes called *rubū šūpū* “shining prince”. As an analogy it is explanatory of the word “eclipse”. Other examples abound. In this case the analogy operating in the lexical list is the same that governs the omen about the lunar eclipse and the death of the ruler.

What was of interest to the ancients about eclipses was their meaning, their recurrence, and their periodicity, not their physical cause. Later astronomical texts focus investigation into eclipses on the period relations underlying eclipse occurrence. This enabled prediction of when an eclipse will occur, or when it will “pass by” and not be locally visible. But such considerations were already embedded in *Enūma Anu Enlil*, as it was of divinatory consequence whether an eclipse was early or late, at an unusual time (*ina la adannišu*) or at an unappointed/not normal (*ina*

¹²² See Livingstone 1986, 2 and for I.NAM.GIŠ.HUR.AN.KI.A see 17–52.

¹²³ Antagal G 201, see CAD s. v. *da’mu* ‘dark colored, dark red’, lexical section, also *attalū* ‘eclipse’, lexical section.

la minātišu) time. As long as astronomy and celestial divination are seen to belong to a single intellectual context, the normative standards between divination and astronomy do not appear discrepant. One is not irrational and the other rational. The so-called magical texts belong in the same way.

Analogical reasoning, the construction of meaningful similarities and correspondences, is not unique to the cuneiform world. Descola has found in Amerindian cosmology a particular way of resolving aspects of ontology predicated upon the importance of analogical reasoning, which he termed “analogism”. He said that “analogism was the dominant ontology in Europe from Antiquity to the Renaissance, and is still extremely common elsewhere: in China and India, in Western Africa or among native cultures of Mexico and the Andes.”¹²⁴ It is also associated widely with what we call magic, which is supposed to differ from science by virtue of its acceptance of the causal workings of the supernatural. Magic, from the point of view of modern scientific naturalism, operates on the basis of an irrational belief in the supernatural, hence Dodds’ identification of the two principal irrationalities of Hellenistic Greek culture with astrology and the occult qualities of plants and stones. But cuneiform divinatory or ritual texts were not concerned with the supernatural. That is to say, the supernatural was not a meaningful classification in the texts that deal with the agencies of gods, demons, ghosts, or sorcerers.

There are reasons both for rejecting as well as maintaining the use of the term magic in the context of cuneiform texts. Arguing for keeping the term, Daniel Schwemer said, “in many respects the texts ... will match our provisional notions about magic but a number of aspects will take us into the spheres of religion and (premodern) science and reveal the limited applicability of our traditional compartmentalizations.”¹²⁵ He further commented on the “powerful heuristic framework” still wielded by J. G. Frazer’s triad of magic, science, and religion, one taken up in detail by S. J. Tambiah with particular emphasis on the history of anthropology.¹²⁶ Schwemer offered that “we should approach the extant sources bearing in mind a general notion of our own concept of magic, which then can be modified by the study of the sources themselves, leading towards an adequate understanding of what can be subsumed under the heading “Mesopotamian magic”.¹²⁷ The *āšipu* had a corpus of technical literature:¹²⁸ the apotropaic rituals (*namburbû*), purification rituals (e.g., *mīs pî* “washing of the mouth”, the rituals of *bīt rimki* “bath house”, and *bīt mēseri* “ritual enclosure”), and the texts with medical preparations and incantations for healing. For reasons of similarity and even continuity in some cases with magic in other cultural contexts, as well as a lack of a suitable alterna-

124 Descola 2010, 338.

125 Schwemer 2011, 418.

126 Tambiah 1990.

127 Schwemer 2011, 420.

128 Ibid. 421 ff.

tive term, therefore, Schwemer takes the position, and I would not disagree, that the term magic seems still to have some life left in it for cuneiform texts.

On the other hand, the use of the category magic as an ahistorical tool for demarcating between science and non-science in this period, or as *a priori* evidence of irrational thinking and misbegotten causality is to be rejected. Here I would agree with Eleanor Robson's comment that:

the term 'magic' categorises a set of thoughts and activities as alien to the mindset and lifestyles of those of us moderns who study the ancient world, and this risks belittling, trivialising, or even denigrating those ideas and practices, while ritual-like activities, and concerns about bodies' and spaces' cleanliness or pollution, are as much a part of modern, Western society as they were of Mesopotamian culture. That is not to say we should somehow domesticate or over-identify with ancient healing practitioners, but rather that historians should have techniques of both familiarisation and de-familiarisation in their repertoire."¹²⁹

The ahistorical and essentially demarcationist usage of the term 'magic' to mean the irrational communing with the supernatural has also been problematic in the historiography of later European medieval and Renaissance science, but for rather different reasons. As John Henry explained:

One major reason for the prevailing mistaken conception (by positivist historians and others) of the nature of magic in the Renaissance is the lack of any understanding of what was known as natural magic. Lack of awareness of the natural magic tradition is due to the fact that it was to a large extent completely absorbed into what we now think of as science, while other, lesser, aspects of the tradition have remained in what should be regarded as merely a rump of the magical tradition – what was left over after parts of the tradition had been absorbed into natural philosophy. Today, we tend to identify magic with the supernatural (if we leave aside the stage trickery of 'show-business' magic), but in the period we are looking at, to describe an event or a phenomenon as supernatural was to say that it had been brought about miraculously by God – only God was above nature, and only God could perform a supernatural act.¹³⁰

From a sixteenth-century handbook on natural magic, Henry cited Giovanni Battista Della Porta as saying, "Magic is nothing else but the knowledge of the whole course of Nature."¹³¹ In this context, then, magic belonged to nature, not the supernatural, while, I would maintain, from a cuneiform perspective, it belonged to neither.

The case of later European magic underscores the necessity of being clear about what magic represents in the cuneiform world, for while the later literature may provide a number of parallels and similarities, the conception of what we would otherwise call the magical properties of phenomena cannot be defined in a matrix with nature and God as conceived in that later period in European culture.

¹²⁹ Robson 2008, 463.

¹³⁰ Henry 2008, 8.

¹³¹ *Ibid.*, and see his n. 29 for bibliography.

The Babylonian scribes' investment in magical ritual and incantation was predicated on the idea of the divine as part of the world, to appeal to the divine to effect desired changes in the world. But the cuneiform scribes' knowledge of what we call magic was not conceived of as the knowledge of "the whole course of nature", as later conceived. Rather, it seems to have been conceived as the knowledge of particular associations between elements of plants, animals, stones, human beings, and of the divine in a comprehensive world structure not the equivalent of nature as represented in Renaissance natural magic.

What is potentially distorting about the classification of systematic knowledge of *materia medica*, incantations, and ritual with magic, and consequently as irrational in the cuneiform world is not so much that as magic it is made to oppose science, but that as magic it refers to a system for influencing or controlling supernatural agents. That definition can have no purchase whatsoever with cuneiform knowledge. Descola quoted the following relevant insight of Durkheim:

In order to call certain phenomena supernatural, one must already have a sense that there is a *natural order of things*, in other words that the phenomena of the universe are connected to one another according to certain necessary relationships called laws. Once this principle is established, anything that violates these laws necessarily appears to be beyond nature, and so beyond reason.¹³²

And he added:

As Durkheim stresses, such clarifications become possible only late in the history of humanity, since they resulted from the development of the positive sciences undertaken by the Moderns. Far from indicating an incomplete determinism, the supernatural is an invention of naturalism, which casts a complacent glance at its mythical genesis, a sort of imaginary receptacle into which one can dump all the excessive significations produced by minds said to be attentive to the regularities of the physical world but, without the help of the exact sciences, not yet capable of forming an accurate idea of them.¹³³

What the cuneiform divinatory and magical texts represent are not examples of the irrational, but rather contexts of the rational, given their epistemological and ontological assumptions. Heeßel, I think, was addressing precisely this when he proposed, in the context of the use of analogical reasoning in late astro-medical texts to adopt from Antoine Faivre the concept of "animated nature" (*belebte Natur*, *nature vivante*), a concept taken from various forms of what Faivre called Western esotericism (including many so-called occult sciences). Heeßel remarked:

Es ist an dieser Stelle wichtig, sich den grundsatzlichen, qualitativen Unterschied der neuen Idee der belebt gedachten Natur zum seit jeher in Mesopotamien bekannten Analogiedenken zu vergegenwärtigen. Das Denken in Analogien geht davon aus, daß zwischen bestimmten

132 Descola 2013, 82 and n. 45 for Durkheim.

133 Ibid.

Teilen des Kosmos offene und verborgene Entsprechungen existieren, die der Kundige lesen und entziffern kann ... Von hier ist es jedoch ein gewaltiger Schritt, ein Sprung geradezu, zur Vorstellung einer ‚belebten Natur‘ und zu der damit verbundenen Idee, daß alles mit allem verbunden ist und sich gegenseitig beeinflusst.¹³⁴

Analogy, and perhaps also some form of ontological analogism, therefore, provides a continuity from the reasoning typical of earlier cuneiform scholarship to that of the later period, though something new is certainly reflected in late astro-medical texts, as Heeßel rightly described. The discontinuity was in the method of correspondences and properties that integrated traditional celestial divinatory and medical practice with zodiacal astrology and its numerical schemata.

I remain, however, somewhat skeptical about Faivre’s Western esotericisms as comparanda, consequently of his notion of a living nature as descriptive of the Babylonian scribes’ conception of their world. I question whether the conception of nature, if taken as a universal order of things constitutive of various naturalisms (methodological, ontological, epistemological), is helpful for describing the way in which the scribes saw and understood that world. That aside, the important aspect is that analogical and associative reasoning functioned as a way to make rational inferences about the meaning of phenomena, and did not exclude other kinds of rational reasoning attested in other areas of cuneiform scholarship and in ancient Mesopotamian life in general.

Even though continued use of the descriptor magic, with its historical freight of irrationality, can prevent us from seeing how cuneiform knowledge provided a context for rational reasoning, I am sure that we are not finished with the term. Schwemer recognized the crux of the matter when he quoted Versnel’s remark that “you cannot talk about magic without using the term magic.”¹³⁵ However, in setting aside ditches, divides, and dichotomies, however big or small, a reconstruction of the intellectual contexts of rationality, here divination, astronomy, astral medicine, and magic, and the reasoning strategies they employed within them, such as the analogical and the deductive, will further our understanding not of the imagined and imaginary “Mesopotamian mind,” but of cuneiform intellectual history.

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¹³⁴ Heeßel 2005, 17–18.

¹³⁵ Schwemer 2011, 419, citing Versnel 1991, 181.

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John Z. Wee

Phenomena in Writing

Creating and Interpreting Variants of the Diagnostic Series Sa-gig

“Therefore, he who thinks to leave behind an Art in written letters, and moreover, he who accepts that anything will be clear and certain from written letters, would be full of much naivety ...”

Plato, Phaedrus 275c

Abstract: This chapter explores the issues involved in modern understandings of phenomena described in ancient scientific and medical cuneiform text series. By well-chosen examples from the Diagnostic Series Sa-gig, its precursors, and its commentaries, interpretation is shown to play a role at every stage from theory-laden observation to its articulation in language conventions, to the mental reproduction of phenomena from written records over time. The treatment of independent and embedded text variants by editors and commentators reveal tensions in how sensory experience, textual contexts, and local or professional culture influenced definitions of phenomena, and how such tensions were not always resolved in consistent ways.

1 Introduction

“Life is short, the Art is long,” pondered the author of the first Hippocratic aphorism.¹ The accretion of medical knowledge required one generation of healers to pass down to the next its observations and interpretations of bodily phenomena, whether by means of oral lore or by writing. But what did it mean to observe and to communicate one’s observations? The second half of the past century saw increasing challenges to the brand of strong empiricism embraced by logical positivism, which accepted sensory experience uncritically as a self-evident basis for epistemology. To philosophers like Norwood Hanson and, later, Thomas Kuhn, observation itself is theory-laden, and the identification of observed objects or processes is shaped by presuppositions about the contexts or paradigms in which they appear.² Ancient healers did not perceive phenomena with a “blank slate” (*tabula*

1 Littré 1844, vol. 4, 458–459.

2 Hanson 1958, 4–69; 1969, 59–198. “Practicing in different worlds, the two groups of scientists see different things when they look from the same point in the same direction. ... Both are looking at

rasa) of mind, but by employing learned ways of seeing that anticipated bodily behaviors and ailments familiar to their art of medicine. The tendency to conform observation to preconceived schemata was further encouraged by long-established habits and practices of expressing such schemata in conventional or professional language. While some audiences could have shared the same cultural interpretations of first-hand sensory experience or second-hand records of such information, other audiences were further removed from such contexts in space and time, receiving communication about observed phenomena through filters of their own knowledge, experience, and skepticism.

Despite these concerns about the nature of sensory perception, there are several indications that direct observation represented a valued ideal in written cuneiform compendia of medicine, astronomy, and omens from ancient Mesopotamia. Although, in most instances, these collections simply record the presence or state of objects (e.g., “If his jaw is long,” *Alamdimmû* 6) or the occurrences of events (e.g., “If a cow gives birth to triplets,” *Šumma izbu* 19), they assumed that knowledge of these objects or events initially derived from an observer’s direct experience or was accurately communicated to a professional who could then interpret its significance.³ The fact that recorded phenomena often consist of instantaneous activities or events, as when “a *zibu*-vulture (flies) past the man’s right side” (Sa-gig 2) or when “a (shooting) star flashes from the east towards the south, passes EN.TE.NA.BAR.ĪHUM, and sets in the west” (Mul-apin 2), contributed to the notion that observation was rooted in a moment of historical time.⁴ Sometimes, the very act of sensory perception is explicitly stated: “When the KA.PIRIG-healer goes to the sick man’s house, if he sees a potsherd standing upright in the street” (Sa-gig 1).⁵ The use of second-person verbs (“you ...”) in descriptions of phenomena, likewise, suggests that the interpreter performed the role of observer: “You shall see the eclipse of the god who, during his eclipse, brightened (and) disappeared, and you shall bear in mind the north wind” (*Enūma Anu Enlil* 20); “If his fingers are placed in his mouth, and you keep taking (them) out, but he returns (them) to his mouth” (Sa-gig 11).⁶ Other cases simply assume there was consensus among multi-

the world, and what they look at has not changed. But in some areas they see different things, and they see them in different relations one to the other” (Kuhn 1962, 150).

3 DIŠ ME.ZÉ.BI GÍD.DA.MEŠ (*Alamdimmû* 6, line 40) in Böck 2000a, 102–103; DIŠ ÁB 3 Û.TU (*Šumma izbu* 19, line 3’) in Leichty 1970, 177.

4 DIŠ *zi-i-bu ana* 15 NA DIB-*iq* (Sa-gig 2, line 7) in Heeßel 2001/2002, 29; MUL [TA ¹]mKUR *ana* ^{im}U₁₈ SUR-*ma* ^{mul}EN.TE.NA.BAR.ĪHUM DIB-*ma ina* ^{im}MAR ŠÚ (Mul-apin 2, iii 46–47) in Hunger and Pingree 1989, 115. For the identification of *zi-i-bu* in this context as a bird (i.e., *zibû* B in CAD Z, 105), note the commentary equation *zi-i-bu* || *ḥa-ru-ḥa-a-a* (“The *zibu*-vulture” refers to “the *ḥarruḥāya*-vulture”). Comm. Sa-gig 1–3 = STT 403, obv. 6 in Wee 2012, 543, 545, 550.

5 DIŠ *e-nu-ma a-na* É ^{1a}GIG KA.PIRIG DU-*ku* DIŠ *ina* SILA ŠIKA *zaq-pa* IGI (Sa-gig 1, lines 1–2) in George 1991, 142–143.

6 Composite Text: *ilu ša ina nandurišu innamrū-ma itbalu nanduršu tammar-ma iltāna ina qātika tukâl* (*Enūma Anu Enlil* 20, §XI, 6) in Rochberg-Halton 1988, 211; DIŠ U.MEŠ-šú *ina* KA-šú GAR-na-

ple observers on the phenomena perceived: “[If] inter-twisting [snakes] rear up inside the city and (several) people see (them) at the same time” (*Šumma ālu* 25); “If a cry sounds out in (several) houses at the same time” (*Šumma ālu* 1).⁷

At least some commentaries seem to envision their audiences with direct access to either omen phenomena or models and illustrations of them: “(If, in your unfavorable extispicy, there is a Split in the right side of the Finger” (*Multābiltu* 2–3); “you have their ‘design’ in front of you” (*Manzāzu* Comm. 2).⁸ The same vocabulary of observation was employed for what we may consider supernatural visions, as well as the act of ‘seeing’ in dreams: “If, in a man’s house, the house’s owner sees a dead man putting on a garment” (*Šumma ālu* 21).⁹ Sensory perception in dreams, in particular, brings to the fore the question of self-awareness, i.e., whether one senses only *what* one is sensing, or also *the fact that* one is sensing: “If (he dreams) he keeps hearing rumors uttered from the sky”; “[If (he dreams) he goes down to the river and] sees a snake” (Dream Omens Tablet C).¹⁰ While modern medicine allows for representations of sensory experience that do not actually derive from external stimuli (e.g., visual or auditory hallucinations), the terminology of “seeing” and “hearing” in cuneiform texts does not suggest the existence of such a distinction between realities experienced by the ancients.

To be sure, the portrayal of direct observation in medical, astronomical, and omen texts may be more ideal than real. Rochberg has correctly pointed out that

ma ta-tab-bal-ma a[na KA-šú ú-tar] (TDP 11, rev. 50) in Labat 1951, 98–99; cf. DPS 15:27’ in Heeßel 2000, 151.

7 [DIŠ MU]Š.MEŠ *it-gu-ru-ma ina MURUB₄ URU iz-zaq-pu-ma UN.MEŠ TĒŠ.BI IGLM[EŠ]* (*Šumma ālu* 25 = BM 78960, lines 13’–14’) in Freedman 2006, 86–87; DIŠ *ik-ki-lu₄ ina É.MEŠ TĒŠ.BI GÛ.GÛ-si* (*Šumma ālu* 1, line 167) in Freedman 1998, 40–41.

8 *ina UR₅.ÚŠ-ka NU SILIM-ti ina 15 ŠU.SI DU₈* (*Multābiltu* 2–3, line A iv 25) in Koch 2005, 135. “Ch. 10 of the *bārūtu* series, known as *Multābiltu* ‘interpretation,’ is, in a way, a commentary in its own right, even though one can debate whether it is a text commentary.” Frahm 2011, 170. Composite Text: *ušurtašunu ana pānika* (*Manzāzu* Comm. 1, § 69) in Koch-Westenholz 2000, 161; cf. Frahm 2011, 175. See also: *BAD-ma šu-[ma-a-ti] ši-bi mu-kal-lim-ti šá NA ana IGI-ka BAD NA u GÍR GAR.MEŠ* ... (“If the (omen) entries, old versions, (and) (commentary)-exposition of the Presence are in front of you, if the Presence and the Path ...”) (*Manzāzu* Comm. 1, lines A i 1–2) in Koch-Westenholz 2000, 132; cf. Frahm 2011, 174–175.

9 DIŠ *ina É LÚ EN É ÚŠ^{túg}su-ba-tu MU₄-ma IGI* (*Šumma ālu* 21, line 13) in Freedman 1998, 308–309.

10 DIŠ *ina AN-e tuk-ki da-b[a-bi] iš-te-nim-mi* (Tablet C, rev. i 8); [DIŠ *ana ÍD ú-rid-ma M]UŠ IGI* (Tablet C, rev. ii 66) in Oppenheim 1956, 328, 330. For the former text, I prefer the translation “from the sky” instead of “from heaven” (which could be understood more metaphorically), because it exists in a section dealing with ‘sky’ events like rain and thunder. The latter text is restored with the aid of neighboring lines (e.g., [...] *ú-rid* in Tablet C, rev. ii 65, 68) and the section’s theme of dreams connected with rivers. Does the dreamer see the snake through the eyes of his dreamed self, or does he see himself in third-person in company with the snake? Does he hear “rumors uttered from the sky” via his dreamed persona, or does he dream of rumors from the sky and notice that his dreamed self is aware of them?

certain descriptions appear outright implausible as scientific statements, because they lay claim to statistically rare or impossible events (e.g., eclipses for every day of the month), or because they seem to be motivated by symbolism or linguistic features such as puns (e.g., a man's dream that he eats a 'raven' (*āribu*) portends 'income' (*irbu*) for him).¹¹ Whatever the origin of phenomenal descriptions, however, we should not underestimate the extent to which the ancients understood the written contents of these compendia as objects or events that could potentially occur. As we will later learn from cuneiform commentaries on these compendia, even what appear to be contradictory or mutually exclusive descriptions could be resolved by explanation. Admittedly, certain lists of descriptions appear less like records of observations and more like products of theoretical systematization, whereby qualities or quantities of phenomena are presented in every possible option or combination.¹² While a sick man's facial marks/colorations and his vomited bile were both said to occur in the usual color options of white, black, red, or yellow-green, for example, it does not mean that ancient healers necessarily expected vomited bile to be 'black' or 'yellow-green' *in the same manner as* facial marks/colorations that are described with these labels.¹³ In fact, embedded variants of the Diagnostic Series Sa-gig include an example where written descriptions of color were imagined in more than one way (see § EV.2.4 below).¹⁴ As a mirror of perceived reality that is imprecise to a greater or lesser extent, spoken and written language could be understood to point to more than a single referent. Audiences, on their part, sought to reconcile written descriptions with phenomena that they were familiar with, or which they considered to be plausible.

Where an observer was present in person, or (better yet) when the phenomenon itself was accessible or could be replicated, audiences had the opportunity to clarify the meanings of any observations that were communicated. In written cuneiform texts that often span periods of decades or centuries, however, audience experience and interpretation in changing intellectual cultures and contexts came to matter more and more. Proactive "reader response" was implicit in the nature of the texts themselves, which encouraged readers or audiences to personally

¹¹ Rochberg 1999, 565–568; 2010, 20.

¹² For example, the systematic repetition of the verbs *sāmu*, *arqu*, *šalmu*, *tarāku*, *du''umu*, *napāhu*, *muqqutu*, *šuhhuṭu*, *šalāmu*, and a few others in Sa-gig descriptions of various body parts from the breast to the thigh (but not so much for body parts higher up) suggests that, for some reason, these body parts constituted a group whose medical conditions or behaviors were confined to a predictable range; see Böck 2009, 393–394.

¹³ Compare TDP 7:49'–52' (= DPS VII B obv. 10'–13') with TDP 9:10 (= DPS IX A 10).

¹⁴ *pa-gar-šú* SA₅ *ma-gal* BABBAR KI.MIN [*na*]-*gi-il* ("his body is red (and) very white, *ditto*, is gleaming") in DPS 33:80 (§ EV.2.4). The mixture of colors "red (and) very white" is atypical in Sa-gig descriptions, and the variant KI.MIN [*na*]-*gi-il* ("is gleaming *ditto*, i.e., very brightly [lit. very whitely]") likely reflects an attempt to explain the relationship between the colors. For non-medical attestations of BABBAR + *naḡālu*, see CAD N I, 107 (§ a).

adopt or, at least, to envision themselves in the role of observer. Furthermore, preserved ancient inscriptions tend to represent end products, while obscuring the complicated history of sensory interpretation and knowledge production that preceded them. Records on wax surfaces of writing boards from ancient Mesopotamia, for example, could have been melted down and re-inscribed repeatedly, thus affording “the freedom of adding, subtracting and finally erasing information which was no longer needed”.¹⁵ Often, what is revealed to the modern archaeologist is not the dynamic event of information processing, but final or interrupted editorial stages. Even for less malleable writing materials such as clay tablets, paper or papyrus scrolls, limestone flakes, and pottery or stone ostraca, the long passage of time from antiquity functions as a sieve for texts. While idiosyncratic compositions or preliminary drafts tended to be actively revised, destroyed, or simply neglected, standard and authoritative editions were repeatedly copied over time and therefore occur with greater abundance in the archaeological record. This means we should not simplistically view ancient medical and scientific texts as no more than eyewitness testimonies, rather, we should also consider how theory-laden observations, post-event reflections, speculative extrapolations, and reasoned responses to (anticipated) criticisms could have been integrated in such texts as a rhetorically persuasive whole.

It is uncertain which descriptions in our cuneiform compendia did, in fact, derive from historical events of observation. Indeed, there are many junctions along the path from observation to communication and beyond, where traditional understandings of empiricism may be brought into question. By looking closely at the Mesopotamian compendium Sa-gig, we will now examine the issues involved in expressing, transmitting, and interpreting phenomena in writing, particularly in cases where observation claims appear, over time, to have taken on a life of their own.

2 Threads, unraveled and rewoven

The Diagnostic Series Sa-gig consists of forty tablets, which are grouped into six subseries that show different principles of organization. The composition is widely

¹⁵ Symington 1991, 118. Writing boards from Assurbanipal’s library at Nineveh preserved astrological, medical, and various omen texts (Parpola 1983, 6). For more mundane purposes, writing boards from Sippar during the Neo-Babylonian/early Achaemenid period recorded “running accounts” of temple and agricultural countables, and various money transactions, as well as “registers” of personnel and equipment (MacGinnis 2002, 227). The colophon of a solar omen compendium, excavated at Nippur, mentions that the omens were originally copied from a writing board onto the clay tablet, perhaps reflecting a desire to preserve the final version of these omens in a more durable form (Rutz 2006, 63–96).

attested in first-millennium BCE copies from the Babylonian cities of Uruk, Babylon, and Borsippa, as well as the Assyrian cities of Nineveh, Kalḫu, Ḫuzirina, and Dūr-Šarrukīn.¹⁶ Some evidence suggests that Sa-gig (and other works by the scholar Esagil-kīn-apli) could have been rejected by scholars at Assur and perhaps viewed with varying degrees of reservation in other Assyrian cities.¹⁷ For the most part, however, Sa-gig seems to have supplanted other diagnostic works, and copies of the latter usually come from the 2nd millennium BCE and only seldom later. Serialized forms of Sa-gig were preserved and interpreted even in Late Babylonian, Achaemenid, and early Hellenistic commentaries from Uruk, Nippur, Babylon, and maybe Borsippa.

According to the so-called “Exorcist’s Manual” (KAR 44), the Diagnostic Series Sa-gig and the Physiognomic Series *Alamdimmū* were included as constituents of the “series of the magician’s arts (*āšipūtu*) of Esagil-kīn-apli, son of Asalluḫi-man-sum, sage of Ḫammurabi king of Babylon”.¹⁸ In the *List of Kings and Sages/Scholars* (W 20030, 7) from Seleucid Uruk, this individual Esagil-kīn-apli is associated with a king whose name is not preserved (line 16), but who has been plausibly identified as King Adad-apla-iddina (1068–1047 BCE).¹⁹ Esagil-kīn-apli’s service as *ummānu-*

¹⁶ Rutz 2011, 294.

¹⁷ Heeßel 2010, 154–164. “This may explain why so few Sa-gig commentaries come from the north, even though the Sa-gig *base text* itself is available at Assurbanipal’s Nineveh library and other Assyrian sites, and even though many commentaries on *other text series* appear in Nineveh” (Wee forthcoming, Chapter 1; cf. Frahm 2011, 220).

¹⁸ SA.GIG-ú ALAM.DÍM.MU-ú (KAR 44, line 6 MS A = obv. 6); [É]Š.GĀR MAŠ.MAŠ-t[i] (MS d: *a-šipūtu*) [šá mĒ]Š.GÚ.ZI-GI.IN-A DUMU m^dAsal-lú-ḫi-[*ma-an-sum* / ABGAL m^h[*a-am-mu-^ra⁻bi*] LUGAL T[IN.TIR^{ki}] (KAR 44, line 27 MS c = rev. 4) in Geller 2000, 244, 248; Jean 2006, 64, 68. For other groupings of Sa-gig and *Alamdimmū*, see *iz-bu* SA.GIG *alam-dim-mu-ú* (obv. 1) in an “esoteric Babylonian commentary” in Biggs 1968, 51–58; Böck 2000b, 615–620; and [*alam-dī*]m-mu-ú : sag-iti-nu-til-la : sa-gig-ga (K 2248 = I, 2) in a “Catalog of Texts and Authors” in Lambert 1962, 64. For the cryptographic writing of Esagil-kīn-apli’s name as m^hÉŠ.GÚ.ZI-GI.IN-A and other similar forms, see George 1993, 63–64. Several scholars think that the mention of Esagil-kīn-apli (line 27 = rev. 4) serves as a heading for the following section (lines 28–43 = rev. 5–20), which therefore necessarily excludes the series Sa-gig and *Alamdimmū* (line 6 = obv. 6). See Bottéro 1985, 93–100; Finkel 1988, 150; Beaulieu 2000, 15; 2007, 12–13 n. 28; Al-Rawi and George 2006, 54–55; Heeßel 2010, 160. I share the view of Jean 2006, 72; Frahm 2011, 325–326, that the reference to Esagil-kīn-apli in line 27 (= rev. 4) is a subscript, not a heading.

¹⁹ In this *List of Kings and Sages/Scholars* (W 20030, 7 in van Dijk 1962, 44–52, plate 27), another individual named Saggil-kīna-ubbib is said to be *ummānu*-scholar of the kings Adad-apla-iddina and Nebuchadnezzar I (lines 17–18). Finkel 1988, 144; Frahm 2011, 324. Finkel has suggested restoring “Adad-apla-iddina” to the *List* (line 16) as Esagil-kīn-apli’s king, as well as to the colophon of a tablet of Sa-gig 12: ITI APIN U₄.17.KAM [MU.x.KAM m^dAdad-DUMU.NI]TA-SUM.NA LUGAL KÁ. DINGIR.RA^{ki} (A 3442 = Source B of TDP 12:iv34–35). Collated by Brinkman 1964, 37 n. 219. For the view that Esagil-kīn-apli and Saggil-kīna-ubbib were “two contemporary exorcists with similar sounding names”, whose names were confused and who “were considered to be one and the same person in some currents of the later tradition”, see Beaulieu 2007, 14; Lenzi 2008, 141–142. Adad-apla-iddina’s interest in the Diagnostic Handbook may be part of his devotion to the healing goddess Nin-Isinna (Beaulieu 2007, 12–13). On the other hand, note the suggestion to restore the name

scholar in the reign of Adad-apla-iddina is more unambiguously recorded in a remarkable text from Kalḫu and Borsippa that I have dubbed “Esagil-kīn-apli’s Manifesto”, which follows after a catalog list of Sa-gig Tablets. This Manifesto, its key terminology, its portrayal of individual Sa-gig subseries, and its relevance for the form and interpretation of cuneiform commentaries are discussed more fully in another publication.²⁰ Here, however, I wish to draw attention to the imagery of textual serialization depicted in Esagil-kīn-apli’s Manifesto, which is pertinent to our understanding of textual variants in the Diagnostic Series Sa-gig:²¹

Composite edition: A 51–71 // B 18’–33’ in Finkel (1988), 148

ša ul-tu ul-la SUR.G[IBIL] ‘*la’ šab-tu₄* ù GIM GU.MEŠ ‘GIL.MEŠ *ša’* GABA.RI’ NU TUKU / *ina* BALA-e ^{md}ŠKUR-IBILA-MU LUGAL TIN.TIR^{ki} GIBIL.BI.ŠÈ [x].ÀM / ^{md}ÈŠ.GÚ.ZI-GIN (MS B: GI)-A DUMU ^{md}Asal-lú-ḫi-ma-an-sum ABGA[L] ^{md}Ḫa-a[m]-mu-ra-bi LUGAL / ... / ... / ... / *ina ka-bat-ti-šú uš-ta-bil-ma* SA.GIG TA muḫ-ḫi EN ĠÎR.ME[Š] / [S]UR.GIBIL DAB.MEŠ-ma ... / ... / ... *sa-kik-ka ri-kis* GIG u *ri-kis* k[u-ri] / [a]lam-dīm-mu-ú bu-un-na-an-né-e la-a-nu šī-mat NAM.LÚ. U₁₈.L[U] / *ša* 40 u PAP.PAP *i-ši-mu ša* ÈŠ.GÂR *ki-lal-la-an* K[È]Š-su-nu 1-ma / ... / ... / ...

Concerning those which from old time were not held together ‘as a new weave’ (SUR.GIBIL) but tangled like threads, with no duplicate to be had²² – in the reign of Adad-apla-iddina (1068–1047 BCE), King of Babylon, in a new way ... Esagil-kīn-apli, son of Asalluḫi-mansum, sage of Ḫammurabi the king ... deliberated with himself, and Sa-gig (entries) from the crown to the feet were held together ‘as a new weave’ (SUR.GIBIL) ... Sa-gig (is) a compilation of (forms of) sickness and a compilation of (forms of) distress. *Alamdimmū* (concerns) physical features (and) external form, (which reveal) the human’s fate that Ea and Asalluḫi/Marduk(?) decreed. Concerning the two series, their (method of) compilation is the same.²³

The precise meaning of SUR.GIBIL *la šab-tu₄* is elusive, and it has been translated idiomatically as “no revised edition (of the series) had been undertaken”, “had not received an (authorised) edition” or “keine Neuedition / Serialisierung erfahren hatte”.²⁴ The statement SUR.GIBIL *šab-tu* can also be found in an Assyrian catalog

of Esagil-kīn-apli’s king as “[Marduk]-apla-iddina (II)” (W 20030, 7, line 16) who reigned in the late 8th century BCE (Hunger 1968, 64, no. 173; Rutz 2011, 295 n. 5).

20 Wee forthcoming, Chapter 1.

21 The composite edition here is from Finkel 1988, 148–149 (A 51–71 // B 18’–33’), and German translations are available in Heeßel 2000, 104; 2011, 194. I have understood *šab-tu₄* (B 18’), GIL.MEŠ (B 18’), and DAB.MEŠ (B 26’) as plural verb forms referring to the plurality of SA.GIG entries, though admittedly the form SA.GIG.MEŠ is not used here as in Finkel 1988, 146 (line A1).

22 I have understood the clause *ša’* GABA.RI’ NU TUKU to be on the same level of subordination as *ša ul-tu ul-la* SUR.G[IBIL] ‘*la’ šab-tu₄* ù GIM GU.MEŠ ‘GIL.MEŠ, both of which refer to entries of the Diagnostic Series Sa-gig. The expression “with no duplicate to be had” does not mean that individual Sa-gig entries did not have parallels in earlier diagnostic works, but that, as a whole, their arrangement in Sa-gig was unprecedented.

23 This refers to the fact that both Sa-gig and *Alamdimmū* have their entries arranged “from the crown to the feet” (Böck 2000a, 14–16).

24 Kinnier Wilson 1956, 136; Lambert 1957, 6; Finkel 1988, 149; Böck 2009, 395 n. 53; Heeßel 2000, 104; 2011, 194. Lieberman 1990, 333 n. 182 has suggested the restoration SUR.B[I] (for *šarrašu*) in-

of medical tablets from the Yale Babylonian Collection (YBC 7123, rev. 5').²⁵ Furthermore, syllabic writing of what may be the same expression (*ša-ra-a la šab-tu*) occurs as a scribal note in Uruanna tablets from Assurbanipal's library.²⁶ Campbell Thompson had proposed early on that *ša-ra-a* is related to the Hebrew root *šwr* ("to bind"), and Lieberman suggested that the Akkadian verb here is *šarāru* ('to tie together').²⁷ Whatever the Akkadian may be, Stol was correct to observe that the logogram SUR is associated with 'spinning', 'twining', and 'weaving'.²⁸ The metaphor "tangled like threads", which immediately follows, certainly supports this view.²⁹ According to the same logic, a text from Assur (VAT 10493+10543) describes an older version of the Physiognomic Series *Alamdimmû* as "the old (series) ..., which Esagil-kīn-apli has not unraveled (DU₈)", again portraying his editorial method as the process of unraveling textual threads from older compositions before combining the material in new ways to create a fresh edition.³⁰

Such imagery of 'weaving' and 'tying together' influenced how commentators understood the title of the Diagnostic Series. To be sure, the term *sakikku* (logo-

stead of SUR.G[IBIL] in line A 51 // B 18' (Finkel 1988, 148), but the reading SUR.G[IBIL] is supported by occurrences of the same expression later in Esagil-kīn-apli's 'Manifesto' and in the catalog.

25 For a hand copy of YBC 7123, see Beckman and Foster 1988, 11 (No. 9a). YBC 7123+ and 7126 (+) 7139 represent "the only catalogue of medical texts which is currently known, consisting of a group of fragments from Assur which belong to the same tablet although do not physically join" (Geller 2005, 19, no. 48).

26 [*ša ul-tu*] *ul-la ša-ra-a la šab-tu* (K 267 + 6069 = CT 14, 22, vii–viii, 55); *ša ul-tu* [*ul-la ša-ra-a la šab-tu*] (K 4373 = CT 14, 9, rev. 2'). Translated "which from of old had not taken ..." with composite edition in Thompson 1949, viii–ix.

27 Thompson 1949, ix n. 4 (cf. Thompson 1924, 5 n. 3); Lieberman 1990, 333 n. 182. Hebrew *šwr* ("to tie up, bind, encircle") has been considered a by-form of Hebrew *šrr* ('to wrap up, envelop, tie up'), which appears to be related to the Akkadian verb *šarāru* (AHw, 1588; cf. what may be the cognate noun *šerretu* 'nose-rope, lead-rope' in CAD Š, 134–137; AHw, 1092). HALOT III, 1015 (I *šwr*), 1058 (I *šrr*); cf. Meyer 1992, § 79, 1c. For suggestions of similar pairs like *dāku* – *dakāku*, *rādu* – *ratātu*, and *nāšu* – *našāšu*, see GAG (1995 ed.), § 100b. Rebecca Hasselbach (personal communication), however, suggested that Hebrew *šwr* was most likely secondarily derived from Hebrew *šrr*, because of resemblances in certain conjugated forms of *šwr* and *šrr*. A similar discussion on Arabic verbs may be found in Voigt 1988, 85–86. Since the conjugation of Akkadian verbs does not result in such 'overlapping forms' between II-w/y and geminate verbs, the occurrence of the phenomenon in Akkadian may well be questioned. Moreover, one would prefer the writing *ša-ar-ra* or *ša-ra* (instead of *ša-ra-a*) for the verbal root *šarāru*. Other proposals for *ša-ra-a* include an Aramaic loanword *z/šarū* in Kinnier Wilson 1956, 138; *zārū*, 'begetter, father' in Lambert 1957, 14; noted but not interpreted in Finkel 1988, 148 n. 38; Koch-Westenholz 1995, 43 n. 1.

28 In addition to the examples in Stol 2007, 241–242, see the lexical equations ^[šu-ur]SUR = *ša*-[*mu-u*], [*ša*-*mu-u* *šā* TÚG (Aa III/6, 98, 111 in MSL XIV, 350); gi.sur = *šur-ri* (Hh. VIII, 184 in MSL VII, 19). Note also the profession 'spinner' (LÚ.SUR.RA) in Sjöberg 1996, 130.

29 The metaphor is, of course, a matter of perspective. For one who accepted the organization of information in Sa-gig, earlier traditions would have appeared "tangled like threads". One who rejected the arrangement of entries in Sa-gig, however, could just as well have thought that Sa-gig was "tangled like threads".

30 DĪŠ 'alam'-dīm-mu-u LIBIR.RA šā Ē-sag-gīl'-GIN-A NU DU₈.MEŠ-šú (Heeßel 2010, 154).

gram: SA.GIG) can mean ‘medical sign’ or ‘symptom’, and it seems appropriate that the title Sa-gig was originally understood in this sense.³¹ However, by what appears to be an exercise in erudite reasoning, commentators repeatedly defined the etymology of Sa-gig as “the compilation (lit. bundling together) of sickness” or “all sickness”. This is reminiscent of the claim in Esagil-kīn-apli’s Manifesto that “Sa-gig (is) a compilation of (forms of) sickness and a compilation of (forms of) distress” (see above). Commentators came to this understanding by analyzing the form SA.GIG as SA + GIG (‘sickness’), then interpreting the element SA as *riksu* (‘binding, bundling together, compilation’) or ‘all’ (*napharu/kiššatu*).³² The interpretation relied on an artful semantic shift from the literal meaning of SA (‘strands’), to the idea of ‘bundling together’ (i.e., ‘strand-ing’, behaving as strands do), to the notion that diverse items were bundled together in a comprehensive group (‘all’). Individual Sa-gig entries were compiled together just as ‘strands’ or ‘threads’ are bundled or woven together.

In these recurring images of editorial activity, texts are treated as textiles.³³ Since the logogram GIBIL means ‘new’, I have translated SUR.GIBIL in Esagil-kīn-apli’s Manifesto as the adverbial phrase “as a new weave” (see above). In the following section, we will encounter various diagnostic texts from the 2nd millennium BCE that seem to have preceded the serialization of Sa-gig, containing many medical entries that mirror those in Sa-gig but are arranged in a different way. While it cannot be shown incontrovertibly that these texts or similar versions of them were employed in the creation of Sa-gig, such a model presents an attractive fit with the imagery of Sa-gig’s serialization, where older textual threads were unraveled and rewoven in different patterns to form a new fabric.

3 Various texts and textual variants

The comparison and study of textual variants in ancient manuscripts has been the mainstay of the field of ‘textual criticism’, which is typically employed in order to

³¹ For *sakikku* as ‘medical sign’ or ‘symptom’, see CAD S, 75 §1b. In other contexts, SA.GIG can denote the muscle sickness *maškadu*, since the logogram SA (‘strand(s)’) can refer to ‘muscles’. See the equations *sa.gig = maš-ka-du* (“List of Diseases” SB Recension, 76 (256) in MSL IX, 94); *sa.gig // maš-ka₁₅(KAK)-du* (VAT 14258 ii 11).

³² For the proposed etymology of Sa-gig, see Commentaries Sa-gig 1(a) (= AO 17661), line 47 in George 1991, 152–153 (MS *a* before its colophon); Sa-gig 5 = SpTU I, 31, rev. 33–34; Sa-gig 36 = SpTU I, 39, rev. 9’. Cf. Commentaries Sa-gig 4(a) = SpTU I, 30, obv. 5; Sa-gig 13+ = GCCII, 406, rev. 17. An edition of the Sa-gig commentaries with explanatory notes is provided in Wee 2012, 499–712; forthcoming, Chapter 5, where the commentaries are labeled according to their categorization in Frahm 2011, 220–229 (§7.4.1.1).

³³ A similar idea underlies the Latin word *textus* (‘woven’); see Stol 2007, 241–242.

reconstruct original or standardized forms of ancient texts, or even to elucidate their histories, genealogies and methods of textual transmission.³⁴ Such purposes remain important components of recent works like Delnero's *The Textual Criticism of Sumerian Literature* (2012) and Worthington's *Principles of Akkadian Textual Criticism* (2012) that take their examples mainly from royal inscriptions and literary compositions.³⁵ It has been noted that "interpretation and textual criticism are part of the same enterprise and should not be pursued in isolation from each other".³⁶ While this is true for the textual criticism of any genre, ancient texts of science and medicine present additional concerns: We are not only interested in the shaping of content at the textual level, but also the envisioning of phenomena that are plausible referents of both written descriptions and the world experienced.

Textual variants exist in two forms: *Independent variants* represent differences at roughly the same locus of a textual entry/section in two or more manuscripts. We should always keep in mind that it can be a matter of degree, or even interpretation, that we speak of two different manuscripts containing the same text, rather than two different texts. *Embedded variants*, on the other hand, represent cases where two or more alternative readings are preserved in the same manuscript. We are probably correct to imagine embedded variants as products of a textual history that combined earlier independent variants in a single manuscript. It should not be surprising that the Diagnostic Series contains more embedded variants than most therapeutic texts, considering Esagil-kin-apli's emphasis on his method of unraveling and rearranging older textual material according to new themes of organization. While we cannot identify with certainty the sources employed by Esagil-kin-apli in the creation of Sa-gig, several Sa-gig descriptions of bodily phenomena do closely resemble parallels in earlier diagnostic works. A comparison of such parallel descriptions can alert us to how the representation of phenomena in written language could be influenced by factors other than sensory experience. Quotations from late Sa-gig manuscripts and their interpretation in cuneiform commentaries can provide striking illustrations of how the meanings of written descriptions were not fixed, but could change over time.

In addition to the Old Babylonian diagnostic tablet (LB 2126) from the Böhl Collection at Leiden, we have copies of second-millennium BCE diagnostic works

³⁴ Textual criticism (also named 'lower criticism') has often been defined in such a way as to exclude the reconstruction of historical scenarios of textual transmission, which is considered the province of historical criticism ('higher criticism'). However, I hope to show that an analysis of variant forms of ancient medical and scientific texts cannot avoid confronting the question of real-world phenomena envisioned in these variant texts.

³⁵ We need not point out the extensive bibliography of textual-critical studies on compositions like the Hebrew Bible, the Talmud, and the Christian New Testament, where the elucidation of precise textual forms has been motivated, in large part, by strong ancient and modern religious interest.

³⁶ Abusch 2002, 185 (preamble before footnote 1).

from Middle Babylonian Nippur (2N-T 336, Ni. 470, CBS 3424(A), CBS 3831, and CBS 12580), Middle Assyrian Assur (VAT 10235, VAT 10748, VAT 10886, VAT 11122, and VAT 12385), as well as the cities of Emar (Msk 74122a and Msk 74127a) and Ḫattuša (Tablets in StBoT XXXVI, etc.).³⁷ Furthermore, a tablet from Neo-Assyrian Ḫuzirīna (STT 89) seems to belong to the same, older diagnostic composition as the Middle Babylonian tablet Ni. 470.³⁸ Another first-millennium BCE text (BM 47687+48517), which Finkel has called a “Poor Man’s *TDP*”, may derive from the Diagnostic Series Sa-gig, rather than represent a precursor of it.³⁹ One recurring characteristic of diagnostic compositions from the 2nd millennium BCE is their tendency to organize medical entries mainly on the basis of shared prognoses or diagnoses involving divine agents, rather than commonalities in medical signs. A multi-column tablet from Susa (MDP LVII, 11) also displays similar principles of arrangement by grouping together entries that share diagnoses pertaining to the god Adad, “the Stillborn Child” (^d*Kubu*), the sun-god Šamaš, the demon Šulak, the god Ningizzida, as well as “MAŠ.DA of the roof (?)”, even though remedial instructions that follow after these diagnoses seem more typical of therapeutic texts.⁴⁰

It is worth repeating and emphasizing that a direct genealogical relationship *does not necessarily exist* among texts that we may consider to be parallels of each other. In other words, a medical entry need not be a precursor or an independent variant of another entry that it closely resembles. Short descriptions of bodily phenomena may unintentionally coincide in wording or expression, especially in cases of highly specific phenomena that drew from a limited pool of anatomical vocabulary. Furthermore, largely invisible in the written text is the complex process of oral transmission, or the ways in which oral instruction could have supplemented and shaped interpretations of a written description. Even taking these factors into consideration, however, there are several parallels in our diagnostic texts that in-

37 For cuneiform editions and translations of these tablets, see LB 2126 in Geller 2001–2002, 73–74; 2N-T 336 (spuriously labeled “2 NB 336”) in Labat 1956, 119–130; Ni. 470 in Kraus 1987, 194–206; CBS 3424(A) in Heeßel 2000, 99–100; CBS 3831 and CBS 12580 in Rutz 2011, 301–307; VAT 10235, VAT 10748, VAT 10886, VAT 11122, and VAT 12385 in Heeßel 2010, 171–187; Msk 74122a and Msk 74127a in Arnaud 1987, 315–317 (nos. 694 and 695); StBoT XXXVI = Wilhelm 1994; KBo VII, 13 in Fincke 2011, 475–476. See also discussion of the Middle Babylonian Nippur tablets in Rutz 2011, 294–308, and dating of the Middle Assyrian Assur tablets in Heeßel 2010, 170. For the provenance of Emar tablets Msk 74122a and Msk 74127a in “Temple M₁, M III NE”, see Arnaud 1985, 13, 14; Pedersén 1998, 61–64. Here, I omit medical texts in the Hittite language published in Burde 1974, which deserve a separate treatment that takes into account possible native Hittite practices in medical writing.

38 STT 89 = Gurney and Finkelstein 1957, vol. 1; edited by Abusch 1987, 63 (lines 38–42); Stol 1993, 91–98 (lines 103–214).

39 Finkel 1988, 153, 158–159 (Fig. II). “*TDP*” is the abbreviation for the title of Labat’s Sa-gig edition: *Traité akkadien de diagnostics et pronostics médicaux*.

40 For MDP LVII, 11, see Labat and Edzard 1974, 235–259.

clude unusual terminology or orthographies unattested elsewhere, which seem to imply a more direct connection between the texts.

In the selected examples below, I will illustrate how meanings expressed by the same or similar textual forms were mutable over time and space, and how written descriptions could have represented different phenomena to different audiences. Many of the texts cited are unfortunately not well preserved. This is especially true for tablets from the 2nd millennium BCE, which may not have been standardized and reproduced to the same extent as Sa-gig and are, therefore, not readily available in duplicates. My practice is to restore damaged portions only minimally, in the absence of parallels other than those from the later Diagnostic Series Sa-gig. Part (a) of each example consists of a quotation from a diagnostic tablet of the 2nd millennium BCE. Part (b) either cites an entry from a single Sa-gig tablet, or represents a composite edition of an entry based on several manuscripts of the same Sa-gig tablet, in cases where any manuscript differences are not significant for our discussion. Part (c) comes from a cuneiform commentary on Sa-gig typically dated to the second half of the 1st millennium BCE, which often includes a quotation of the Sa-gig base text employed by the commentator, as well as his explanation of terms that he and his audience considered difficult or obscure.⁴¹ Part (d) consists of a non-diagnostic text that is relevant to the discussion.

(1) a. Ni. 470, obv. 8

DIŠ SAG.KI-šu ša ZAG i-rad-ma ša GÛB ne-e-et x [...]

(Parallel to Sa-gig Entry #2:) If his right temple shakes and the left one “ne-e-et” ...

b. DPS IV B = AO 6682, obv. 22–23

DIŠ SAG.KI-šú šá 15 SED-át šá 150 KÚM(ne)-e-et ŠU GIDIM₇ / DIŠ SAG.KI-šú šá 15 i-rad-ma šá 150 KÚM(ne) KI.ÚS SAG.TUK KI.ÚS-us TIN

(Sa-gig Entry #1:) If his right temple is cold (and) the left one is hot (KÚM-e-et), hand of a ghost.

(Sa-gig Entry #2:) If his right temple shakes and the left one is hot (KÚM), he trod on the tracks of a *rābišu*-demon⁴²; he will live.

⁴¹ By “base text”, I refer to the Sa-gig manuscript used by the commentator, which may or may not contain readings that differ from other Sa-gig manuscript copies that are preserved and available to us today. Of course, it is possible that a commentator followed a different base text *tradition*, rather than merely a *single manuscript* with different readings. However, such different base text readings are often only attested in commentary quotations. I am being cautious in confining my discussion to the base text *manuscript* used by the commentator, without dismissing the possibility that a different manuscript reading may reflect larger textual *traditions*.

⁴² In diagnostic and therapeutic texts, the *rābišu*-demon is typically indicated by the logogram MAŠKIM. For the writing SAG.TUK in AO 6682, obv. 23 (Example 1b), see the commentator’s explanation: KI.ÚŠ SAG.TUK KI.ÚŠ-us / [ki-b]i-is ra-bi-ši ik-bu-[u]s : KI.ÚŠ : [kib]-si / [SA]G.TUK : ra-bi-ši : ... (KI.ÚŠ SAG.TUK KI.ÚŠ-us (means) “he trod on the tracks of a *rābišu*-demon”. KI.ÚŠ means “tracks”. SAG.TUK means “*rābišu*-demon”). Comm. Sa-gig 4(a) = SpTU I, 30, obv. 9–11 in Wee 2012,

- c. Comm. Sa-gig 4(a) = SpTU I, 30, obv. 8–9
 ... ne-e'-et : né-ḫe-et / [i-ra]d-ma : ra-a-du : sa-la-ḫa : ...
 (Commentary to Sa-gig Entry #1:) “ne-e'-et” means “(his left temple) is at rest”.
 (Commentary to Sa-gig Entry #2:) “(His right temple) shakes.” “To shake” means “to tremble”.⁴³

Example 1b contains the writings KÚM(ne)-e-et (Sa-gig Entry #1) as well as KÚM(ne) (Sa-gig Entry #2).⁴⁴ The Middle Babylonian Nippur diagnostic tablet Ni. 470 (Example 1a) does not include any entry resembling Sa-gig Entry #1, but has a close parallel to Sa-gig Entry #2 with the signs ne-e-et. This suggests the signs in both Sa-gig entries of Example 1b were originally ne-e-et, but the reading in Sa-gig Entry #2 was later simplified to KÚM(ne) in preserved manuscripts.⁴⁵ The rationale for this simplification is evident: In Sa-gig Entry #1 of Example 1b, the three cuneiform signs ne-e-et must have been interpreted as KÚM-e-et (= *emmet*, “(the left temple) is hot”), which presented a contrast to the preceding description that “his right temple is cold”. In this interpretation, KÚM represents the logogram of the verbal root *emēmu* (‘to become hot’), while the signs -e-et function as the phonetic complement of the conjugated form *emmet* (“it is hot”). The writing KÚM-e-et, however, is distinctively awkward, and one would expect *emmet* to be expressed as KÚM or KÚM-et instead. In other words, for a scribe convinced that the sign NE stood for the logogram KÚM in both Sa-gig entries, it was natural to simplify the writing in Sa-gig Entry #2 from KÚM(ne)-e-et to KÚM. For unknown reasons, the signs KÚM-e-et in Sa-gig Entry #1 remained unchanged.

Furthermore, in an Achaemenid commentary, the base text employed by the commentator (perhaps the magician Anu-ikšur) seems to have contained the writing ne-e'-et (Example 1c).⁴⁶ Not only was there disagreement with Example 1b that

266 n. 67; 567, 570, 574. The Middle Babylonian Nippur tablet Ni. 470 groups together entries with diagnoses involving the *rābišu*-demon (written MAŠKIM in Ni. 470, obv. 4, 10, 12), but the signs SAG.TUK are unfortunately not preserved in Ni. 470, obv. 8 (Example 1a), which is parallel to AO 6682, obv. 23.

43 *salāḫu* (‘to tremble’) also appears as a comment in Comm. Sa-gig 3(b) = BM 43854+43938, rev. 2–3: ŠU^{II}-šú u ĠĪR-šú i-ra'-bu : / [ra'-bu] : sa-la-ḫu (“His hands and his foot shiver.” [“To shiver”] means “to tremble”).

44 The transcription “*emmet(e-et)*” for TDP 4, obv. 23 (Labat 1951, 34) is an error that likely arose from not properly distinguishing the reading in existing Sa-gig manuscripts (Example 1b) from that of the second-millennium BCE diagnostic tablet Ni. 470 (Example 1a).

45 The opposite scenario, whereby KÚM or KÚM-et becomes mistakenly written as KÚM-e-et, is much more improbable.

46 One might argue that the commentator used a base text with the writing ne-e-et but quoted the signs as ne-e'-et, in order to facilitate his equation of the term with *né-ḫe-et*. While this is conceivably possible, Sa-gig commentators were typically scrupulous in quoting signs from their base texts, as evident in numerous cases where, unlike Example 1, the cited signs are attested in exact form and sequence in available Sa-gig manuscripts.

the sign NE represents the verb KÚM (“to become hot”), the writing ne-*e*’-*et* (with *e*’ instead of *e*) makes the interpretation KÚM-*e*’-*et* = *emmet* even more unlikely. In fact, the commentator affirmed the syllabic nature of the sign NE (which could have the logographic value KÚM) by substituting it with the sign NI (which has the syllabic value *né* but not the logographic value KÚM). He also seems to have conflated the signs *e*’ (MZL no. 635) and *eḥ* (MZL no. 636), so that ne-*e*’-*et* could express the form *nēḥet* (< *nāḥu*, ‘to be at rest’), which could in turn be written syllabically as *né-ḥe-et*. To be sure, the proposed reading *nēḥet* (“it is at rest”) still does not satisfactorily account for the orthography ne-*e*-*et* in Examples 1a and 1b. However, the commentator was likely motivated by an imagined contrast in Sa-gig Entry #2 between a ‘shaking’ right temple and a left temple ‘at rest’.

As a matter of fact, the order of topics in Sa-gig commentaries typically follows the sequence of lexical items in their base text, and commentators usually explained only the first occurrence of a difficult term without repeating their explanations for subsequent recurrences of the same term. In other words, the statement that “ne-*e*’-*et*” means “(his left temple) is at rest” must have been a commentary on Sa-gig Entry #1, rather than Sa-gig Entry #2 where we might expect the ‘shaking’ vs. ‘at rest’ contrast to make more sense. Because the commentator was convinced of the intended dichotomy between a ‘shaking’ right temple with a left temple ‘at rest’ (Sa-gig Entry #2), he was willing to forgo the neat antithesis of a ‘cold’ right temple versus a ‘hot’ left temple (Sa-gig Entry #1). In both Examples 1b and 1c, ambiguous writing was interpreted in ways that were deemed, at the time, most plausible to the experiences of scribes and their audiences.

- (2) b. TDP 3:89–90 = DPS III A rev. 6’–7’ // C rev. 29–30

[DIŠ TA SAG].^rDU’-šú EN MURUB₄-šú GIG TA MURUB₄-šú EN ĠIR^{II}-šú TIN
ITI GIG GIG-*su* ĠÍD-*ma* TIN / [DIŠ TA SAG].^rDU’-šú EN MURUB₄-šú TI TA
MURUB₄-šú EN ĠIR^{II}-šú GIG *e-reb* GIG GIG-*su* ĠÍD-*ma* TIN

(TDP 3:89:) [If] he is sick [from] his head to his waist (but) well from his waist to his feet, he is sick for a month; his sickness will prolong and he will live.

(TDP 3:90:) [If] he is well [from] his head to his waist (but) sick from his waist to his feet, entering of sickness; his sickness will prolong and he will live.

- c. Comm. Sa-gig 3(a) = SpTU I, 29, rev. 5’–6’

ITI GIG : *ár-ḥu* GIG-*u*[š ...] / ITI : *a-šu-ú* : ...

ITI GIG means “he is sick for a month” ... ITI means “to exit”.

This next example strikingly illustrates the extent to which meanings of individual terms could be influenced by their textual context. Such influences point to the importance of understanding recorded phenomena, not as disembodied pieces of information, but as parts of larger contexts prescribed by organizational principles

in their compendia. The two Sa-gig entries in Example 2b seem to describe opposite medical conditions, but these do not lead to diagnoses that are likewise contrasted. The commentator of Example 2c (perhaps Anu-ikšur), however, was compelled by his assumption that opposite medical conditions should also be accompanied by opposite diagnoses: Because “entering of sickness” (*erēb* GIG) was the diagnostic verdict for one entry (TDP 3:90), the other entry (TDP 3:89) supposedly dealt with “exiting of sickness” (ITI GIG). In order to achieve this interpretation, the commentator argued that the sign ITI (or ITU) could also mean ‘to exit’ (*ašû*).⁴⁷ This is surprising, as the sign ITI almost always serves as the logogram for ‘month’, and no lexical texts indicate that it could mean ‘to exit’.⁴⁸ Moreover, the diagnosis “he is sick for one month” is also attested elsewhere in diagnostic and therapeutic texts, where the writing of the number 1 or the numerical complement KĀM indicates that an enumerated “month” is intended.⁴⁹ Furthermore, the idiomatic way to express the lessening influence of sickness is not “exiting of sickness”, but perhaps “slackening of sickness” (*paṭār murši*).⁵⁰ In short, the commentator took a lot of liberty interpreting the written form ITI GIG (Example 2c), so that its meaning would reflect his opinion why the two Sa-gig entries in Example 2b were juxtaposed together.

(3) b. TDP 3:4–5 = DPS III A obv. 13–14

[DIŠ UGU-šú] ka[l U₄/GE₆ G]AZ.ME ŠĀ-šú¹ *i-ta-na-âš-ši-ma* KI.NĀ *it-ta-na-as-har'-šu* GIM šá ana UGU MUNUS ŠUB-tu ÍL ŠĀ TUKU-ši ŠU K[I.SIKI]L.LÍL.LÁ.EN.NA

[If his crown] keeps (feeling) crushed all [day/night long], his heart/belly keeps rising, and the bedding keeps turning round about him, like one who lies down upon a woman, he has arousal of the heart, hand of the *ardat lilī*-demoness.

c₁. Comm. Sa-gig 1–3 = STT 403, obv. 19

ŠĀ-šú *i-ta-na-ši*(SI) || Š[Ā]-šú ana BURU₈ *e-te-ni-la-a*

“His heart/belly keeps rising” means “his belly keeps coming up to vomit”.

⁴⁷ It is improbable that the commentator had in mind another sign closely resembling ITI, because he conceded earlier in his argument that the most natural understanding of ITI GIG is “he is sick for a month”. More likely, he thought that the cuneiform sign ITI or ITU could be a way of indicating *ašû* (‘to go out’), perhaps due to perceived assonance between /itu/ and /ašu/.

⁴⁸ In his note to SpTU I, 29, rev. 6', Hunger remarked that “dieses Logogramm (ITI) kann ich sonst nicht nachweisen”.

⁴⁹ ITI.1.KĀM GIG (DPS 31:12', 53'); 1.ITI GIG (BAM 66, obv. 10).

⁵⁰ DU₈(-ár) GIG (TDP 14:iv 18'; DPS 16:[40'], 44'; 17:62; 22:33); GIG-su DU₈(-ár) (DPS 16:46', 51', 66', 83'); GIG.BI DU₈-ár (DPS 17:72); TU.BI DU₈-ár (DPS 17:71); *pa-ṭá-a-ar mu-ur-ši* (StBoT XXXVI, Tablet A, [obv. 2, 3]; rev. 14'; [Fragment D2, rev.² 14]).

c₂. Comm. Sa-gig 7(b) = SpTU I, 33, rev. 2'–3'

[ŠĀ-šú *ana*] BURU₈ *i-ta-na-áš-šá-a* : *lib-ba-šú a-na pa-re-e* / [i-ša]q-qa-a : ...
 “[His belly] *i-ta-na-áš-šá-a* (i.e., keeps rising)⁵¹ [to] vomit” means “his belly becomes raised to vomit”.

d. ŠĀ.ZI.GA ritual in AMT 65/7, lines 2'–3' (Biggs 1967, 51)

DIŠ NA *ana* MUNUS-šú *iṭ-ḫi-ma* [...] / *a-na* MUNUS-šú ŠĀ-šú NU ÍL [...]

If a man approached his woman ... his heart does not rise (i.e., is not aroused) for his woman ...

While Examples 1 and 2 reveal how local textual contexts shaped the meanings of written forms, Example 3 shows that such influences could extend beyond isolated texts and reflect language idioms and expressions ascribed to larger genres. Example 3 also vividly demonstrates that, in conceiving similar written expressions as variants or as referents to the same phenomenon, one makes an interpretive decision that can significantly alter the original meanings of terms. The expression in question is ŠĀ-šú¹ *i-ta-na-áš-ši-ma* (“his heart/belly keeps rising”) in Example 3b. The Diagnostic Series Sa-gig often employs the term ŠĀ (*libbu*, ‘belly’) technically, to denote a discrete anatomical region that is distinguished from ŠĀ.MEŠ (*qerbū*, ‘innards’) and *errū* (‘bowels’).⁵² Elsewhere, however, ŠĀ frequently refers to the ‘heart’ as the seat of a person’s emotion. In Example 3b, the medical description “his heart/belly keeps rising” consists of terms (ŠĀ ‘heart’ + the verb *našū* ‘to rise’) that are cognate to its diagnostic verdict ÍL ŠĀ = *nīš libbi* (‘arousal of the heart’), and it most likely depicts the rousing of sexual desire. Similar uses of these terms occur in texts of the ŠĀ.ZI.GA genre, as illustrated by Example 3d.⁵³

The commentator of Example 3c₁, however, did not interpret the expression in Example 3b as the feeling of sexual arousal, but as a physiological response to nausea: “his belly becomes raised to vomit.” As a matter of fact, the expression

51 I retain the signs *i-ta-na-áš-šá-a* (< *našū* ‘to rise’) in my translation here, to reflect their possible confusion with orthographies like *i-ta-na-áš* (< *āšu* “to retch”; DPS 22:25, 28) that appear in similar contexts of ‘vomiting’. Besides the need to distinguish conjugated forms of *našū* and *āšu*, the commentator was also concerned to clarify that the verb *našū* does not have its usual transitive sense (‘to raise’), but an intransitive meaning (‘to rise, heave’) in contexts of the belly (CAD N II, 103 §5.2’).

52 For example, in the head-to-foot arrangement of Sa-gig Subseries II (Tablets 3–14), the sick man’s expression of pain in colloquial terms – “My inside (ŠĀ)! My inside (ŠĀ)!” (TDP 13:iii 21–28, 34–35) – is interpreted according to technical definitions of anatomical terms and assigned to the section on ŠĀ.MEŠ ‘innards’ (TDP 13:ii 35–iii 46 = DPS XIII B ii 35–J 15’), instead of ŠĀ ‘belly’ (TDP 13:i 48’–ii 34 = DPS XIII B i 44–B ii 34).

53 Besides instances of the fixed expression *nīš libbi* (‘arousal of the heart’), the noun ŠĀ (‘heart’) appears as the subject of the verb *našū* (‘to rise, be aroused’) in ŠĀ-šú ÍL-šú-*ma* ... ŠĀ-šú N[U ÍL-šú] (Sm 818:6’), *a-na* MUNUS-šú ŠĀ-šú NU ÍL (AMT 65/7, line 3’ = Example 3d), [ŠĀ-šú N]U ÍL-*ma* (STT 280, i 1), [ŠĀ-šú] NU ÍL-šú (STT 280, i 10) in Biggs 1967, 50 (no. 34), 51, 66, as well as ŠĀ-šú-*nu* ÍL-šú-*nu-ti* in SpTU I, 9, line 14’.

did resemble many other statements in diagnostic and therapeutic texts that describe the patient's 'belly' (ŠĀ) as 'rising' (*našū*), 'coming up' (*elū*), or 'proceeding' (*epēšu*) to vomit.⁵⁴ In fact, one such statement in Sa-gig Tablet 7 (not preserved in existing manuscripts) became a chosen topic in other commentaries like Example 3c.⁵⁵ The similarities between Examples 3c₁ and 3c₂ are fascinating, even though the former comes from Neo-Assyrian Huzirina (Sultantepe) and the latter from the library of Anu-ikšur in Uruk. One wonders if these descriptions of the belly rising to vomit were also frequently used in colloquial speech or often addressed in the teaching of medical texts. Whatever the influence may have been, the commentator of Example 3c₁ seems to have misunderstood a written account of sexual arousal, treating it as a variation on the idiomatic expression for nausea and vomiting.

- (4) a. StBoT XXXVI, fragment D2, obv. 13'
 [... *it-te*]-*né-en-ši-la ki-iš-ša-at še-e-ti*
 ... keep becoming sluggish(?); *kiššatu* of *šetū*-heat.
- b. DPS 33:102 // TDP 14:i30–31 (DPS XIV A i 30–31)
 "DIŠ" TA *giš-ši-šú EN ŠU.SI.MEŠ* "GİR" "šú" "SA".MEŠ-šú *it-te-nen-ši-l[a-šú k]i²-iš²-šat UD.D[A MU.NI]*
 If, from his hips to his toes, his strands keep becoming sluggish(?), [its name is] *kiššatu* of *šetū*-heat.
- c. Comm. Sa-gig 14 = SpTU I, 36, obv. 6–7
 ... : *ki-iš-šat U[D.DA] / hi-miṭ UD.DA lib-bu-ú i-šat mu-ú-tú i-šat šib-ṭu KI. MIN : ...*
 "*kiššatu* of [*šetū*-heat"⁵⁶ (*means*)] "burning of *šetū*-heat". As in, "fire of death, fire of plague,⁵⁷ ditto (i.e., *kiššatu*)".
- d. Fire incantation in Lambert 1970, 40, lines 5–7
 [ÉN] *i-šá-tu-um-ma i-šá-tum [i]-šat me-ḥu-u i-šat qab-li [išā]t mu-u-tú išāt šib-ṭu išātu ka-sis-tum*
 [Spell:] Fire, fire, fire of storm, fire of battle, fire of death, fire of plague, consuming fire ...

54 ŠĀ-šú *ana a-re-e i-ta-na-šá-a* (DPS 22:26); ŠĀ-šú *ana BURU₈ i-te-né-él-la-a* (TDP 3:44); ŠĀ-šú *ana pa-re-e e-te-né-la-a* (BAM 578:i27); ŠĀ-šú *ana pa-re-e i-te-né-[el-la]* (BAM 578:i 47); ŠĀ-šú *ina pi-qi ana BURU₈-e DÜ.DÜ-uš* (BAM 49:i1'; [50, obv. 13]); ŠĀ-šú *ana pa-re-e e-te-né-pa-áš* (BAM 575:ii 17).

55 In addition to Comm. Sa-gig 7(b) = SpTU I, 33, rev. 2'–3' (Example 3c₂), see Comm. Sa-gig 7(a) = SpTU I, 32, rev. 5–6: ... *i'-ta'-na-šá-a : ÍL : na-šú'-[u] / [Í]L : šá-qu-u : BURU₈ : ia-ár-ru : ...* ("i'-ta'-na-šá-a." ÍL *means* "to rise." ÍL *means* "to become raised". BURU₈ *means* "he pukes"). See also Comm. Sa-gig 3(b) = BM 43854+43938, rev. 5–6: ŠĀ-šú *ana BURU₈-e a-re-e : i-te-né-él-la-[a]-[ma] / [BURU₈ : a-ru]-[ú : BURU₈ : pa]-ru-ú* ("His belly keeps coming up to BURU₈ (subscript: 'to puke')." [BURU₈ *means* "to puke".] BURU₈ *means* "to throw up").

56 *Contra* the reading *ki-is-sat I[ZI'] / hi-miṭ UD.DA* by Hunger in SpTU I, 36, obv. 6–7.

57 For the reading *šibṭu* ('plague') instead of *šiptu* ('judgment'), see CAD Š II, 387 (*šibṭu* A); *contra* Lambert 1970, 40 (line 7).

At times, pressures to interpret unfamiliar terms in light of well-known phenomena could be so great as to trump meanings imposed by structures of organization in Sa-gig. The writing *kiššatu* is not unusual in diagnostic and therapeutic texts, where it could refer to at least two kinds of conditions involving either muscle pain or loss of hair.⁵⁸ The expression “*kiššatu* of *šētu*-heat”, however, is attested only in a Ḫattuša fragment (Example 4a) and in an entry duplicated in Sa-gig Tablets 33 and 14 (Example 4b). Its occurrence in DPS 33:102 (Example 4b) is particularly instructive about the nature of the sickness, since it exists as part of a group of medical entries (DPS 33:94–102) that deal with muscle ailments such as *šaššatu* (DPS 33:97), *sagallu* (DPS 33:98), *maškadu* (DPS 33:99–100), and *kiššatu* (DPS 33:101). In this context, “*kiššatu* of *šētu*-heat” evidently represented a version of *kiššatu* or a closely related muscle malady. Because the expression occurred so rarely, however, its meaning was later brought into question.

In the Achaemenid period, a commentator (yet again, perhaps Anu-ikšur) interpreted “*kiššatu* of *šētu*-heat” as another name for the very common sickness “burning of *šētu*-heat” (*ḫimiṭ šēti*), which usually occurs in context with fevers and is seldom described together with muscle problems (Example 4c).⁵⁹ He achieved this by citing a fire incantation allegedly containing the term *kiššatu*, therefore arguing that *kiššatu* was another way to express ‘burning’.⁶⁰ Existing manuscripts of this incantation contain the term *kāsistu* (‘consuming’) instead of *kiššatu* (Example 4d), and it is likely that the commentator took liberties with the wording of the fire incantation in order to make it more relevant to the commentary. To be sure,

⁵⁸ The *Chicago Assyrian Dictionary* lists the two sicknesses separately as 1) *kissatu* B (*kiššatu*, or *kizzatu*) at CAD K, 428–429, and 2) *kiššatu* (*giššatu*) at CAD K, 443. The first is translated as ‘gnawing’ and identified as ‘muscle pain (myalgia)’, while the second is simply transliterated as *kiššatu* and glossed as ‘hairless’ in Scurlock and Andersen 2005, 54–55 (§ 3.129), 213–214, 635 n. 29, 638 n. 78’–79’; cf. Heeßel 2000, 189.

⁵⁹ For example, in the therapeutic tablet BAM 3, which quotes selectively from the series DIŠ NA UGU-šú KÚM ú-kal (“If a person’s crown holds fever”), the burning of *šētu*-heat (UD.DA TAB) is mentioned in close proximity to other fevers (BAM 3:i20 = UGU I, 83’). For clear attestations of “burning of *šētu*-heat” (almost all of which have little to do with muscle ailments), see TDP 9:50; 14:ii 40; DPS 16:1, 84’; 17:7; 23:1; the whole tablet DPS 31; BAM 3:i 20; ii 27; 9:23; 52:59; 66, rev. 14’; [145:1, 17]; 146:[15’, 29’], 38’, [46’]; 168:18; 171:62’; 174, rev. 25; 186:13; 379:iii 24, 37’; 393, obv. 23; rev. 22; 416, rev. 5; 422:ii 33’, 36’; iii 1; 423:I 7’; 480:ii 19, 21; iii 17 (incl. AMT 41/3:9’); BAM 481, obv. 6’; 515:i 9; 516:ii 6’ (incl. AMT 17/4:ii 6’); BAM 579:ii 54’; AMT 20/2:7’; 88/3:1.

⁶⁰ In the commentary tablet, the cuneiform signs *ki-iš-šat* appear directly above the term KI.MIN (“ditto”), which therefore represents the word *kiššatu*. It is unclear whether the commentator, in fact, considered the terms *kiššatu* and *kāsistu* to derive from the same verbal root, or whether he was influenced by their similar associations with ‘*šētu*-heat’ and ‘fire’. Note that the *Chicago Assyrian Dictionary* lists as separate entries the following three verbs with similar meanings: 1. *gašāšu* A (*kašāšu*), ‘to gnash the teeth, to rage’ in CAD G, 52–53; 2. *kasāsu* A, ‘to gnaw, to chew up’ in CAD K, 242; 3. *kasāsu* B (*kazāzu*), ‘to hurt, to sting, to consume(?)’ in CAD K, 242–243. Cf. von Soden’s classification: 1. *kašāšu*, *gašāšu*, ‘abschleifen’ in AHW, 457–458; 2. *kasāsu*, *kašāšu*, ‘kauen, nagen’ in AHW, 453; 3. *kazāzu*(?) in AHW, 467.

inflammations resulting in fevers are also commonly associated with muscle aches and pains. Carefully read, however, the commentator’s argument does not assert that “*kiššatu* of *šetū*-heat” is a muscle ailment accompanied by “burning of *šetū*-heat”. Rather, the commentator reasoned that ‘*kiššatu*’ in this context stands for the term *ḫimiṭ* (‘burning’), and that the “*kiššatu* of *šetū*-heat” is no more than a variant writing for the common sickness “burning of *šetū*-heat”, whose manifestations may or may not include muscle difficulties.

(5) a₁. CBS 3424A, line 1

[DIŠ *i-ḫ*] *a-ḫa-am-ma a-na ḫu-ḫa-ti-šu NIM la is-ni-iq BA*.ÚŠ
[If] he vomits and no fly came near his vomitus, he will die.

a₂. StBoT XXXVI, fragment H, line 9

[*ip-ru*] *a-na ḫu¹-ḫa¹-ti₇-šu NIM la i-ṯ[e₄-eḫ-ḫe BA.ÚŠ]*⁶¹
(If) he threw up and no fly approaches his vomitus, [he will die].

b₁. DPS 17:60

DIŠ TA GIG *ip-ru-ma ana ḫu-ḫa-ti-šú NIM la TE-ḫe GAM*
If he threw up because of sickness and no fly approaches his vomitus, he will die.

b₂. DPS 23:5

[DIŠ *ip-ru-ma*] *ana ḫu-ḫa-ti-šú NIM la is-niq Ú[Š]*
[If he threw up] and no fly came near his vomitus, he will die.

The reading [*ip-ru-ma*] (“he threw up”) in Example 5b₂ may be plausibly restored, since it occurs in a compact Sa-gig section (DPS 23:1–5) that seems to employ the verb *parû* repeatedly to describe the “throwing up” of bile.⁶² The ancient scribe also recognized DPS 23:1–5 as a discrete unit of text, as evident from the horizontal line etched across the tablet that demarcates this section.⁶³ The act of “throwing up” in section DPS 23:1–5 is appropriately expressed by the generic verb *parû*, whose syllabic attestations in diagnostic and therapeutic texts involve the regurgitation of bile, blood, *saḫḫu*, or other undefined substances.⁶⁴ It is true that *parû*

⁶¹ The damaged cuneiform signs [*r*]u and ṯ[e₄] may be restored with confidence, judging from the copy in KUB XXXVII 31, line 9.

⁶² The term ‘bile’ (ZÉ) occurs only in the very first entry of the section DPS [23:1], which needs to be restored by the catalog entry in Finkel 1988, 147, line A 28, as well as Comm. Sa-gig 23 = RMC 193, obv. 1: DIŠ GIG ZÉ *ip-ru* (“If the sick man threw up gall”) in Wee 2012, 683. The frequent repetition of *parû* (‘to throw up’) in this very short section should likely be understood as references to the same situation, i.e., the ‘throwing up’ of bile.

⁶³ In Example 4 above, we already encountered another such section (DPS 33:94–102) that groups together medical entries dealing with muscle ailments.

⁶⁴ Syllabic attestations of *parû* describe the vomiting of ‘bile’ in DPS [23:1] (restored by Finkel 1988, 147, line A 28; and Comm. Sa-gig 23 = RMC 193, obv. 1 in Wee 2012, 683); BAM 389:7'; 575:iii56, 66; ‘blood’ in DPS IX B obv. 19; DPS [15:5'] (near duplicate of TDP 9:20); BAM 389:5'; *saḫḫu* in BAM

(‘to throw up’) and *arû* (‘to puke’) are very similar verbs, and commentaries occasionally equate *parû* with BURU₈ (the logogram for *arû*) in attempts to clarify word meanings by using even imprecise synonyms.⁶⁵ In Sa-gig, however, the logogram BURU₈ (= *arû*) seems to be employed mainly in descriptions of puking blood.⁶⁶ Similarly, although the noun *ḥuḥḥītu* (pl. *ḥuḥḥātu*, ‘vomitus’) may denote varied regurgitated contents, the verb *ḥaḥû* (‘to vomit’) is used in Sa-gig for the ‘vomiting’ of mainly blood.⁶⁷ This affinity between *ḥaḥû* and blood may explain why the description MÚD *i-par-ri*, “he throws up blood” (DPS IX B = K 261, obv. 19), became corrupted as MÚD *i-ḥa-ri* (DPS IX A = AO 6681, obv. 20) in another manuscript, where the scribe was evidently influenced by the verb *ḥaḥû* (‘to vomit’).⁶⁸

In this view, the use of *ḥaḥû* in the Middle Babylonian Nippur entry (Example 5a₁) would not have been best suited for the Sa-gig section on vomiting bile (DPS 23:1–5). In the first place, we cannot even be sure that Middle Babylonian audiences of Example 5a₁ understood the description as the “vomiting” of bile and not other substances. Furthermore, we cannot be certain that a precursor text with *ḥaḥû* was reworded as *parû* in Example 5b₂, in order that the latter might more appropriately express the throwing up of bile. After all, parallel entries with *parû* are attested elsewhere in Sa-gig (Example 5b₁) and in a second-millennium BCE fragment from Ḥattuša (Example 5a₂). On the other hand, a connection between Example 5a₁ (with *ḥaḥû*) and Example 5b₂ (with *parû*) is probable because of their shared use of the verb *isniq* (“(no fly) came near”), instead of the more common and generic verb *iṭeḥḥe* (“(no fly) approaches”).⁶⁹ The uncertainties here and else-

75:6; or an unspecified substance in DPS 17:60; 19/20:108'; 23:2, [3, 5]; 35:81 (DPS XXXVI 81); BAM 49:i1'; [50, obv. 13]; 389:10'; 558:i 18' (incl. AMT 55/1, obv. 10'); BAM 574:i 27; 575:iii 44; iv43; 578:i 29; AMT 50/3, obv. 6, 11; 84/7:3.

65 ŠĀ-šū *ana* BURU₈-e *a-re-e* : *i-te-né-el-la-[a]-[ma]* / [BURU₈ : *a-ru*]-[ú : BURU₈ : *pa*]-*ru-ú* (“His belly keeps coming up to BURU₈ (subscript: ‘to puke’).” [BURU₈ means “to puke”.] BURU₈ means “to throw up”.) in Comm. Sa-gig 3(b) = BM 43854 + 43938, rev. 5–6. See also Comm. Sa-gig 7(b) = SpTU I, 33, rev. 2'–3' in Example 3c₂ above.

66 For BURU₈ + MÚD (‘blood’), see TDP 10, rev. 4; 12:iii22; 13:ii26; DPS XIV C₂ iii 26b; DPS 15:22', 40', 43', 59'.

67 For MÚD (‘blood’) + *ḥaḥû*, see TDP 3:79; 9:74; 13:i41, 43; ii21, 27; DPS 17:27, 28; 22:39. For ZÉ (‘bile’) + *ḥaḥû*, see TDP 14:iii56'; DPS 17:27. The description in DPS 15:5' is broken, but it is a near duplicate of TDP 9:20 (MÚD *i-ḥa-ri* in MS A; MÚD *i-par-ri* in MS B). Note also a possible parallel in the broken context of DPS 21:20': [DIŠ K]I.[M]IN-*ma ina* DÚR-šú MÚD *i-a-šam(Ú) ana ḥu-[ḥa-ti-šú² NIM NU TE? ...]* (“[If] ditto, and he ‘vomits’/expels blood from his rectum, (and) [no fly approaches his] vomitus ...”). The writing *i-a-šam* has been interpreted as the verb *āšu* (“Übelkeit verursachen (vom Bauch)”) in Heeßel 2000, 247–249, 407; cf. ŠĀ (‘belly’) + *āšu* in DPS 22:25, 28; BAM 231:i11; 232:i11'; 578:i47. However, one wonders whether *i-a-ú* could also be a writing for *i-ḥa-ḥu* (“he vomits”), especially if the restoration of its cognate noun *ḥu-[ḥa-ti-šú]* is correct. Cf. the orthographies *i-'a-ḥa* (TDP 13:i41); *ia-ḥu* (DPS 22:39 MS E).

68 This corruption was also encouraged by the visual similarities between the *ri* and *ḥu* signs, which meant that the signs *i-ḥa-ri* would resemble *i-ḥa-ḥu*.

69 While the logogram TE can express the verb *sanāqu* (‘to come near’; cf. lexical section in CAD S, 133), the phonetic complement in TE-*ḥe* (Example 5b₁) clearly indicates the verb *ṭeḥû* (‘to ap-

where illustrate why the history of textual transmission often remains in shadows. Cases like Examples 5a₁ and 5b₂, however, provide suggestive glimpses at the possibility that words, expressions, and idioms in Sa-gig and other cuneiform compendia might have been intentionally modified and standardized, and that editorial influence could have shaped – not only the arrangement – but also the very language describing observed phenomena.

- (6) a₁. 2N-T 336, rev. 6
 [DIŠ GI]G *kal-li* SAG.DU-šú *su-uḫ-ḫur* [...]

 [If] the bowl (= cranium) of the sick man's head is curved away ...
- a₂. 2N-T 336, rev. 3
 [DIŠ GI]G MIN *saḫ-rat u* SA₅ [...]

 [If] *ditto*⁷⁰ (= the hair of the sick man's head) is curved (= curled) and red

 ...
- b. TDP 3:23a = MLC 2639, obv. 23'a // DPS III A = BM 33424, obv. 33
 DIŠ *kal-li* SAG.DU-šú *sa-ḫir* : *is-saḫ-ḫar* GAM

 If the bowl of his head (= his cranium) is curved : turns about, he will die.
- c. Comm. Sa-gig 1-3 = STT 403, obv. 26
 [*kal-li* SAG].DU-šú *saḫ-rat* || SÍG SAG.DU-šú *saḫ-rat*

 “[The bowl]⁷¹ of his head (= his cranium) is curved” means “the hair of his head is curved (= curled)”.

Similar efforts to standardize Sa-gig vocabulary may perhaps be discerned in this next example as well. The body part named ‘bowl of the head’ (*kalli qaqqadi*) possibly designated the human cranium, since the term *kallu* appears in other contexts as a reference to a clay or wooden bowl, a turtle shell, or a bronze or iron household utensil.⁷² However, it is far from clear how this ‘bowl of the head’ relates to other parts of the head such as *muḫḫu* (‘crown (of head)’), *pūtu* (‘forehead’), and *nakkaptu* (‘temple’). The writing *kalli* SAG.DU, in fact, occurs only in the few texts

proach’). Although *sanāqu* can denote the condition of exta in extispicy contexts (CAD S, 137, § 1h), it appears elsewhere in diagnostic and therapeutic descriptions of the body only at TDP 13:iii 40 (DPS XIII J 8): ... BĀD ŠĀ-šú *ana ḫAR-šú is-niq* ... (“the wall of his belly comes near to his lung”).

⁷⁰ The sign MIN (“*ditto*”) refers to [S]IG SAG.DU-šú (“hair of his head”) in the preceding line 2N-T 336, rev. 2.

⁷¹ Despite the need for restoration, the base text cited here most likely corresponds to TDP 3:23a (= DPS III A obv. 33 = Example 6b), since the base text of the preceding commentary entry (STT 403, obv. 24–25) is TDP 3:19 and that of the following commentary entry (STT 403, obv. 27) is TDP 3:23b, and since the verb *saḫāru* is attested nowhere else in the immediate vicinity of TDP 3:23a. The commentator evidently used a base text manuscript with the feminine verb *saḫ-rat* (Example 6c), instead of the masculine verb *sa-ḫir* (Example 6b) in Sa-gig manuscripts available to us.

⁷² AHw, 426; CAD K, 83.

cited above, and it seems to be absent from lists of anatomical terms in the lexical texts Ugu-mu and Nabnitu.⁷³ My translations of the verbs above are only tentative, since we do not know what “curving” or “turning about” exactly meant in the context of what may be the “cranium”.⁷⁴ Could these verbs, for instance, refer to a “curved” depression or protrusion in the cranium, or the resulting head injury to a cranium that is “repelled” (*suhḫuru*) by force? Or, perhaps, could they indicate the presence of hair whorls above the cranium?

One notices, nonetheless, that the D Stative *suhḫur* in the tablet from Middle Babylonian Nippur (Example 6a₁) appears instead as the G Stative *saḫir* in the Diagnostic Series Sa-gig (Example 6b).⁷⁵ Furthermore, the embedded variant *issaḫar* (N Durative) in the same Sa-gig entry suggests that the exact form of this verb may have been disputed in the course of its textual history. The motivations for preferring the G Stative (*saḫir*) to the D Stative (*suhḫur*) in Sa-gig are not explained in the Diagnostic Series itself, but a Neo-Assyrian commentary from Ḫuzirīna (Sultantepe) suggests an answer (Example 6c). The commentator probably reasoned that Example 6b (= TDP 3:23a) must be a description of the sick man’s hair, since it appears within a section in Sa-gig Subseries II (TDP 3:18–23) devoted to different terms for hair such as *uruḫḫu*-hair (TDP 3:18–22) and *pertu*-hair (TDP 3:23b). In this view, the ‘cranium’ serves as a metonym for the hair growing above it, analogous to how the modern colloquialism ‘redhead’ refers to a person with auburn hair. The feminine verb *saḫrat* (Example 6c) in the commentator’s base text may reflect the understanding that *kallu* could be a feminine noun, or may point to an elided feminine subject such as *(*šārat* or *peret*) *kalli* SAG.DU (“(hair of) the bowl of the head”).⁷⁶ In any case, the forms *saḫir* (Example 6b) and *saḫrat* (Example 6c) mirror other Sa-gig entries that employ the G stem (never the D stem) for ‘curled’ hair.⁷⁷ Interestingly, the same Middle Babylonian tablet that describes the cranium with the D Stative *suhḫur* (“curved away”) (Example 6a₁) also uses the G Stative *saḫrat* (“is curved = curled”) when “hair” is explicitly mentioned (Example 6a₂), which makes one wonder whether Middle Babylonian audiences understood Example 6a₁ as a description of something other than hair.

73 See parts of the head listed in Couto-Ferreira 2009, 73–127; Nabnitu Tablet I (MSL XVI, 49–60).

74 Note the reading *uṣ-ṣaḫ*(= *ṣāḫ* in MZL, no. 484)-*ḫir* (instead of *us-saḫ-ḫir*) *qaq-[q]a-du bi-nu-tú a-me-lu-ti* and its translation “the sum of human kind was reduced” in Lambert 1970, 43 (section III, line 22); cf. CAD S, 49, §10.

75 For another example of parallel entries with different stem forms, compare [DIŠ GI]G SA IGI.MEŠ-šú *ki-ma* ŠU.GUR *kap-pu* [...] (2N-T 336, rev. 7) with DIŠ SA IGI^{II}-šú GIM ŠU.GUR *kup-pu-[pu ...] na-kid* [...] (TDP 5:G:9–10 = DPS V G 9–10).

76 Note that the feminine plural form *kallātu* occurs in Neo-Assyrian contexts. AHw, 426; CAD K, 83.

77 DIŠ SÍG SAG.DU-šú SA₅ *u saḫ-[rat GAM]* (TDP 3:112 = DPS III A rev. 28' // C rev. 53 // G 8); [DIŠ SÍG SAG.D]U-šú *i-saḫ-ḫar ina EDIN TAG-it na-'id* (TDP 3:104 = DPS III A rev. 20' // C rev. 44).

- (7) a. StBoT XXXVI, tablet A, rev. 10'–11'
 [SAG.DU-sú] *qá-ta-a-šu še-pa-a-[šu] m[i]ʹ-ʹit-ḫa-riʹ-iš ʹik-kà-laʹ-a-šú pu-šu a-na at-m[e-e da-an]ʹ* [ŠĀ-šu *i-te-né*]-ʹelʹ-la-a lu-ʹ-ʹaʹ-[tu] ʹŠUʹ [ʹdIšta]r [BA.ÚŠ]
 (If) his [head], his hands, (and) [his] feet hurt him in the same way, his mouth [is difficult] for speech, (and) [his belly]⁷⁸ keeps rising; dirty things, Hand of [Ištar]; [he will die].
- b. TDP 3:41–45 = DPS III C obv. 41'–45'
 DIŠ SAG.DU-su ŠU^{II}-šú u GĪR^{II}-šú *i-tar-ru-ra KA-šú ana a-ma-ti da-a-an i-na K[A(?)]-šú ...*]x DIŠ SAG.DU-su ŠU^{II}-šú u GĪR^{II}-šú *1-niš i-tar-ru-ra ina KA-šú át-mu-šú it-te-ni-ip-r[ik-ku NA.BI lu-ʹ-tu₄ ... (?) š]u-kul* DIŠ SAG.DU-su ŠU^{II}-šú u GĪR^{II}-šú *i-ra-ʹ-ú-ba KA-šú ana at-me-e il-la-a-tú(?) [...]*x DIŠ SAG.DU-su ŠU^{II}-šú u GĪR^{II}-šú *1-niš i-ra-ʹ-ú-ba ŠĀ-šú ana BURU₈ i-te-ni-il-la-a-ma [...]* DIŠ SAG.DU-su ŠU^{II}-šú u GĪR^{II}-šú *i-rat-tu-ta KA-šú ana DU₁₁ da-an it-te-ni-ip-rik ʹNA(?)ʹ.[BI lu-ʹ-a-ti šu-k]ul*
 If his head, his hands, and his feet quake, his mouth is difficult for words, in [his] mouth/speaking (?) ...⁷⁹ If his head, his hands, and his feet quake at the same time, his speech keeps being impeded in his mouth; [that man] is fed [dirty things ... (?)] If his head, his hands, and his feet shiver, his mouth ... spittle(?) ... for speech ... If his head, his hands, and his feet shiver at the same time, his belly keeps rising to puke, and ... If his head, his hands, and his feet quiver, his mouth is difficult for speaking, (his speech) keeps being impeded; [that] man [is fed dirty things].⁸⁰

This pair of examples raises important questions concerning assumptions about the history of textual transmission and the definition of what constitute textual variants. There are significant distinctions in terminology here, notably the manner

78 I have followed Wilhelm's restoration of signs in StBoT XXXVI, Tablet A, rev. 11', but one wonders whether there is space in the damaged part of the tablet for [ŠĀ-šu ana (p)arê *i-te-né*]-ʹelʹ-la-a (KUB XXXIV 6, rev. 11').

79 The damaged diagnoses of TDP 3:41–45 (DPS III C obv. 41'–45') likely include versions of the following expressions, which are quoted in Comm. Sa-gig 1–3 = STT 403, rev. 43–46 (Wee 2012, 544, 548, 557–558): *ina DU₁₁.DU₁₁-šú it-te-né-ep-rik-ku₈* ("when he speaks, (his spoken words) keep stopping"), *lu-ʹ-u-tu₄* ("a dirty thing"), *ana ma-al-taq(/tak)-ti* ("for the purpose of *ma-al-taq(/tak)-ti*"), and *lu-ʹ-a-a-ti* ("dirty things"). The commentator wrongly ascribed the term *ma-al-taq(/tak)-ti* (rev. 45) to the verbal root *latāku* ("to test"), instead of *šatāqu* ("to cut off"). This error is discussed in detail in Wee forthcoming, Chapter 5.

80 DPS III C obv. 45 has been collated in Scurlock and Andersen 2005, 299 (§ 13.87). The restoration of *lu-ʹ-ātu šūkul* ("he is fed dirty things") for [... *š]u-kul* (TDP 3:42) and [... *šu-k]ul* (TDP 3:45) is likely, given its attestation in other texts like TDP [11, obv. 28] (SpTU I/34:27); DPS 15:16'; StBoT XXXVI/23, rev. 11'; and perhaps AMT [48/2:14]. See also *lu-ʹ-ātu šaḡi* ("he is made to drink dirty things") in BAM [90:5']; AMT [48/2:14]; [50/3, obv. 6–7]; *nullātu šūkul* ("he is fed foolishness") in BAM 161:ii 20'–21'; 282:2'; 436:vi 15'; AMT 29/5:i 15.

in which *ištēniš* (“at the same time,” Example 7b) came to replace *mithāriš* (“in the same way,” Example 7a) in certain Sa-gig contexts.⁸¹ The most striking difference here, however, concerns the description of phenomena involving the sick man’s head, hands, and feet. Where the second-millennium BCE Ḫattuša tablet describes these body parts in concise language as “hurting” (*akālu*) the patient (Example 7a), the Diagnostic Series Sa-gig employs a variety of verbs having to do with trembling, such as ‘quake’ (*tarānu*), ‘shiver’ (*ra’ābu*), and ‘quiver’ (*ratātu*) (Example 7b). It is tempting to treat the older Ḫattuša tablet as the precursor of entries in Sa-gig, by which shorter aphorisms or statements came to become elaborated as longer descriptions over time. On the other hand, the first-millennium BCE ‘Poor Man’s TDP’, which probably derives from Sa-gig rather than precedes it, uses the verb ‘to hurt’ (*akālu*) apparently as a generalization of various ways that each body part could be affected by sickness or pain.⁸² It is an open question whether Example 7a constitutes a precursor of the Sa-gig parallel (Example 7b), or whether it represents a summary of yet earlier medical information that is preserved in full only in existing Sa-gig manuscripts.

Such complexities in the routes of textual transmission come as little surprise to those who work intensively in the field of textual criticism. For our purposes here, it is instructive to observe how differences in Examples 7a and 7b extend well beyond textual variations in sign orthography (Example 1), grammatical forms (Example 6), or even individual lexical roots (Example 5) that we encountered earlier. The assumptions we hold when identifying parallel texts can run the risk of *petitio principii*: since we identify possible parallels, precursors, or independent variants to Sa-gig entries based on their mutual similarities, the ones we do find are, by definition, similar to existing Sa-gig entries. While the method is useful to an extent, related texts can also correspond to each other in less exact ways. This point is further corroborated by embedded Sa-gig variants that we will examine in the following section. Although pairs of embedded variants presumably represent

81 “In the Diagnostic Series Sa-gig, the term *ištēniš* (written 1-*niš*) is used when different body parts hurt ‘at the same time,’ whereas the term *mithāriš* describes the parity of temperature levels in different *locations* of the patient’s body, in line with expressions such as KÚM *mithār* (‘the fever is evenly high’) and KÚM NU *mithār* (‘the fever is unevenly high’); see further discussion and references in Wee 2012, 77–78, 285. While the use of *mithāriš* (not *ištēniš*) is usually apparent from syllabic writing in Ḫattuša tablets, other second-millennium BCE texts often employ the logogram TĒŠ.BI (= *mithāriš* or *ištēniš*), which, unfortunately, obscures any differences between the terms: Ni. 470, obv. 5 (versus 1-*niš* in TDP 4, rev. 26); CBS 3831, obv. 1; VAT 10748, line 10’. Note also instances where 1-*niš* appears in Sa-gig entries with neither *ištēniš* nor *mithāriš* in their second-millennium BCE parallels: TDP 3:109 (DPS III A rev. 24’ // C rev. 49) versus 2N-T 336, rev. 5; TDP 11, rev. 28 versus CBS 12580, obv. 2; TDP 3:52 versus CBS 12580, obv. 9.

82 Judging from undamaged portions of the “Poor Man’s TDP” (BM 47687+48517), exceptions to the use of *akālu* (‘to hurt’) occur for the ‘inflaming’ (*napāḫu*) of the innards (obv. 16), the condition of being ‘struck’ (*maḫāṣu*) above (obv. 20), and in another uncertain context (obv. 1). Finkel 1988, 153, 158–159 (Fig. II).

the combination of earlier independent variants in a single manuscript, these embedded variants can differ from each other to the extent that we may not always recognize them as independent variants if they should occur in separate manuscripts.

4 Reproducing phenomena from writing

In compendia like the Diagnostic Series Sa-gig, separate written descriptions of phenomena could be combined in a single manuscript as embedded variants. Such textual strategies reveal the editor's intention to depict generic situations or classifiable scenarios, rather than precise accounts of historical persons, objects, or events. While it is possible that individual descriptions have their roots in observed bodily behaviors or ailments, Sa-gig as a whole cannot be said to preserve the historical records of specific patients, and its individual 'entries' do not represent exemplars of medical 'case histories'.

The embedded variant typically adopts the form A : B, whereby elements A and B represent alternative readings of parts of medical entries.⁸³ While the disjunction sign (:) is the most common way to mark off variants in the text, other notations such as KI.MIN ('ditto'), *lū* ('or'), and *šumma* ('if (so)'; DPS 22:52) probably perform the same function.⁸⁴ Furthermore, in cases where variants were felt unlikely to be confused as continuous syntax, notations were sometimes omitted altogether. An example of this is the pair of prognostic verdicts TIN GAM, which communicates the mutually exclusive outcomes "he will live (*or*) he will die", since the interpretation "he will live (and) he will die" makes no sense.⁸⁵ Elsewhere, I have provided a list of embedded variants in the Diagnostic Series Sa-gig, but it would be helpful to give some examples here.⁸⁶ The categories below are not mutually exclusive.

§ EV.1 Logographic-syllabic variants

- § EV.1.1. DPS 19/20:95' *mi-qiit : pi-i* : KA
 "Fall : of the mouth (syllabic) : of the mouth
 (logographic)"

83 Such forms, of course, recall the A : B structure of commentary equations, and I discuss the significance of this resemblance in Wee forthcoming, Chapter 1.

84 For my identification of the notation in both embedded variants and commentary equations as a 'disjunction sign' (*Trennungszeichen*) rather than a *Glossenkeil*, see Wee 2012, 484–487; forthcoming, Chapter Four (§N1).

85 The embedded variants TIN GAM appear without any intervening notation in DPS 15:87'; 16:88' (MS B).

86 Wee 2012, 724–734 (Appendix C); forthcoming, Appendix 1.

- § EV.1.2. TDP 35:5 GÛN.A : *ba-ru-um*
“variegated (logographic) : variegated (syllabic)”
- § EV.2 Semantic variants (verbs)
- § EV.2.1. TDP 4, obv. 12 TA ^dUTU.ŠÚ.A EN EN.NUN.UD.ZAL.LE *ur-rak* : *ú-šam-šá*
“it prolongs from sunset to the morning watch : it lasts overnight”
- § EV.2.2. TDP 9:69 IM KIR₄-šú KÚM : *ša-bit*
“the breath of his nose is hot : is seized”
- § EV.2.3. DPS 29:85’ ^dŠu-lak ŠUB-su : DAB-su
“Šulak befalls him : seizes him”
- § EV.2.4. DPS 33:80 *pa-gar-šú* SA₅ *ma-gal* BABBAR KI.MIN [na]-gi-il
“his body is red (and) very white, *ditto*, is gleaming”
- § EV.2.5. DPS 33:96 *i-par-ru-ud* KI.MIN *i-gal*’-^rlu’-^rut’
“it shudders, *ditto*, it jitters”
- § EV.2.6. TDP 40:24 *ig-da-al-lut* *ib-ta-nak-ki* KI.MIN LÛ.LÛ-ah
“he keeps jittering (and) crying, *ditto*, he keeps becoming confused”
- § EV.3 Semantic variants (nouns)
- § EV.3.1. DPS 15:41’ *ina* GIŠ.KUN-šú SÎG-iš : *ina* ŠIR-šú
“he is struck in his coccyx : in his testicle”
- § EV.3.2. DPS 23:7 IGI.MEŠ-šú : UZU.MEŠ-šú GE₆.MEŠ
“his face : his flesh is black”
- § EV.3.3. TDP 36:19 SAG ŠĀ-šá IM *le-qí* : ŠĀ-šá IM *ša-bit*
“her epigastrium is taken with wind : her belly is seized with wind”
- § EV.4 Semantic variants (long statements)
- § EV.4.1. DPS 26:48’-49’ GIM *šá id-ku-šú* MUD-ud ZI.ZI-bi | : U₄ *id-de-ku-šú re-ḫi*
“as soon as they awakened him, he shudders (and) keeps getting up | : when they have awakened him, he is doused”
- § EV.4.2. DPS 27:33-34 *kal* ^{lu}AD₆-šú GIM *kal-ma-tum i-ba-šú-ú i-nam-muš u ŠU-su ub-bal-ma la i-ba-áš-šú* : *la ig-gi-ig*
“his whole body crawls as if there were lice, and he brings up his hand (but) there is nothing : he does not scratch”
- § EV.5 Supplementary variants
- § EV.5.1. DPS 16:10 GAM : *ana* GAL₅.LĀ ÚŠ *pa-qid* GAM
“he will die : he is delivered over to a *gallû*-demon of death, he will die”

- § EV.5.2. DPS 26:14' (MS B) GÌR^{II}-šú *i-ta-nak-na-an-na* : ŠU^{II}-šú *u* GÌR^{II}-šú
“his feet keep becoming contorted : his hands and his feet”
- § EV.6 Semantic opposites
- § EV.6.1. TDP 4:1 KÚM-*im* : SED
“he becomes hot : cold”
- § EV.6.2. TDP 14:iv56' GÌR-šú šá 150 : 15
“his foot on the left : right”
- § EV.6.3. DPS 26:29' (MS B) ÚĤ NU TUK : *it-ta-nag-ra-ár*
“he has no spittle : (spittle) keeps rolling down”
- § EV.7 Orthographic variants
- § EV.7.1. TDP 9:31 EME-šú SIG₇ : SU-šú SIG₇
“his tongue is yellow : his body is yellow”
- § EV.7.2. TDP 13:i6' ŠU KI TIN : ŠU KI.NE GAM
“hand of KI, he will live : hand of KI.NE, he will die”
- § EV.7.3. DPS 17:72 KA-šú : EME-šú
“his mouth : his tongue”
- § EV.7.4. DPS 19/20:13' DAB-*su* KÚR.KÚR-*ir* : UMUŠ-šú KÚR.KÚR-*ir*
“his seizure keeps changing : his mentality keeps changing”
- § EV.8 Phonological variants
- § EV.8.1. TDP 9:35 *ina ú-kul-ti* : *ina qú-ul-ti*
“in ‘devouring’ : in the dead of night”
- § EV.8.2. TDP 13:iii27 *rab-biš* : *rap-diš*
“softly : aimlessly?”
- § EV.8.3. TDP 35:65 *za-aq-ru* : *saḥ[?]-ru*
“are protruding : are turned”
- § EV.9 Time designations
- § EV.9.1. DPS I, 8 (TDP 1:11) *ana* ITI.3.KAM : *ana* U₄.3.KAM
“for 3 months : for 3 days”
- § EV.9.2. TDP 13:ii2 *ina* U₄.3.KÁM : U₄.4.KÁM
“on the 3rd day : 4th day”
- § EV.9.3. DPS 19/20:119' *ina* ŠÀ MU BI : *ina* U₄ šú-*a-tú*
“within that year : in that day”
- § EV.9.4. DPS 19/20:120' x ŠÀ ITI BI : *ina* ITI šú-*a-tu*₄
“within that month : in that month”
- § EV.10 Divine agents
- § EV.10.1. TDP 4, rev. 30 ŠU DINGIR URU-šú : ŠU ⁴UTU
“Hand of his city god : Hand of Šamaš”

- § EV.10.2. TDP 9:51 ŠU ^dAMAR.UTU TIN KI.MIN ŠU ^dIŠKUR
“Hand of Marduk, he will live, *ditto*, Hand of Adad”
- § EV.10.3. TDP 13:ii10 lu ŠU ^dUTU lu ŠU ^dŠu-^rlak^r
“either Hand of Šamaš or Hand of Šulak”
- § EV.10.4. TDP 13:ii31 ŠU ^d30 lu ŠU ^d15
“Hand of Šin or Hand of Ištar”
- § EV.10.5. TDP 13:ii14 SĪG-iš MAŠKIM : GIDIM SĪG-iš
“strike of a *rābišu*-demon : he is struck by a ghost”
- § EV.10.6. DPS 22:24 NAM.ERIM₂ DAB-su : lu-’a-ti DAB-su
“an oath seized him : a dirty thing seized him”
- § EV.10.7. TDP 40:51 ši-bit ^dDIM₁₁.ME : ŠU DUMU.MUNUS ^dA-nim
“seizure of the *lamaštu*-demoness: Hand of the daughter of Anu”
- § EV.11 Prognoses
- § EV.11.1. TDP 10:51 TIN : *na-kid*
“he will live : it is distressing”
- § EV.11.2. TDP 12:iii17 TIN : GAM
“he will live : he will die”
- § EV.11.3. DPS 15:87’ TIN GAM
“he will live (:) he will die”
- § EV.11.4. DPS 18:38’ DU₆.DU₆-ma : NU TIN : TIN
“he keeps becoming overwhelmed and : he will not live : he will live”
- § EV.12 Incommensurate variants
- § EV.12.1. TDP 10, rev. 10 ÚḪ DAB-su KI.MIN GIDIM₇ DAB-su
“spittle seized him, *ditto*, a ghost seized him”
- § EV.12.2. TDP 12:iii11 TIN : ^dMAŠ.TAB.BA
“he will live : the Divine Twins”
- § EV.12.3. DPS 16:28 DAB-it KUR-i : GAM
(MS A) “seizure of the mountain : he will die”
- § EV.12.4. TDP 36:6 TI-uṭ : *ma-mit* AD-šú DAB-si
“she will live : the oath of her (lit. his) father seized her”

Some of these embedded variants, in fact, come close to what might be the result of combining parallel medical descriptions in existing manuscripts. As a thought experiment, let us assume for argument’s sake that the parallel entries in Examples 8 and 9 below are indeed independent variants, and let us imagine how they might be combined to form embedded variants.

- (8) a. VAT 10235, obv. 10'–11'
 DIŠ KÚM-*im* SED A¹.MEŠ¹ *ana ra-ma-ki m[a-gal APIN.MEŠ ŠU² dDIM₁₁.ME² :] li-pit dEN.ZU⁸⁷ [...]*
 If he becomes hot (and) cold, [he very much asks for] water to bathe; [Hand of the *lamaštu*-demoness :] Touch of Sîn ...
- b. DPS 19/20:9'
 [DIŠ KÚM-*im* u SED A *a[na TU₅ 'UL₄ 'GAL 'APIN'.MEŠ [Š]U dDIM₁₁.ME : ŠU d₃₀ 'x' [...]*
 [If he becomes hot and cold,] he very much asks for [water] to bathe; Hand of the *lamaštu*-demoness : Hand of Sîn ...
- (9) a. CBS 12580, obv. 4
 DIŠ SA ĠÎR^{II}-*šu te-bu-ú IGI^{II}-šu kab-ta-šu SAG.'DU-su ù x' [...]*
 If the strands of his feet pulsate, his eyes are heavy for him, his head and ...
- b. TDP 11, rev. 29 = DPS XI A rev. 29'
 [DIŠ S]A ŠU^{II}-*šú u ĠÎR^{II}-šú ZI.MEŠ-ma IGI^{II}-šú DUGUD-šú SAG.DU-[su ...]*
 [If the] strands of his hands and his feet pulsate, and his eyes are heavy for him, [his] head ...

The different terminology for the moon-god's role in sickness (Examples 8a and 8b) could be conflated as the embedded variants **li-pit* dEN.ZU : ŠU d₃₀ (“*Touch of Sîn : Hand of Sîn”).⁸⁸ Different descriptions of the same demonic being, for instance, appear as the variants “seizure of the *lamaštu*-demoness: Hand of the daughter of Anu” (§ EV.10.7).⁸⁹ Examples 9a and 9b, on the other hand, could be combined as *SA ĠÎR^{II}-*šu : ŠU^{II}-šú u ĠÎR^{II}-šú* (“*strands of his feet : of his hands and his feet”), in the same manner as the embedded variants “his feet keep becoming contorted : his hands and his feet” (§ EV.5.2). We should not think, however, that the conflation of parallel textual descriptions always led to the formation of embedded variants. In cases where differences in language were not considered significant enough, such as *ú-ru-uḫ-šú* (“his *uruḫḫu*-hair”; 2N-T 336, rev. 1) versus *ú-ru-uḫ* SAG.DU-šú (“the *uruḫḫu*-hair of his head”; TDP 3:18 ff.), either reading could have been adopted as a representative for both.⁹⁰

⁸⁷ The signs *li-pit* dEN.ZU (VAT 10235, obv. 11') were earlier read as *ši*^(sic)-*bit* dEN.ZU in Heeßel 2000, 241.

⁸⁸ I use the asterisk to indicate hypothetical forms of embedded variants that are not actually attested.

⁸⁹ A couple of commentaries assume that the “daughter of Anu” in the context of Sa-gig refers to the *lamaštu*-demoness. Comm. Sa-gig 1(a) = AO 17661, obv. 19–20; Comm. Sa-gig 1(b) = SpTU I, 27, obv. 24'–25' in Wee 2012, 500, 504–505, 515, 520. For more on this demoness, see Farber 1983, 439–446.

⁹⁰ [DIŠ GIG] *ú-ru-uḫ-šú be-e-er* ... (2N-T 336, rev. 1) // DIŠ *ú-ru-uḫ* SAG.DU-šú *bé-e-er* ... (TDP 3:18 ff. = DPS III A obv. 27 ff. // C obv. 18 ff.); cf. [DIŠ] *ú-ru-uḫ-šú x [...]* (VAT 11122, obv. 1).

As a matter of fact, our modern perceptions of what constituted significant differences in written forms may not accurately reflect ancient views. For example, a scribe might have considered “Touch of Sîn” to be part of the general idea in “Hand of Sîn”, especially since the formula ŠU dX (“Hand of [the deity X]”) was the standard way to denote divine agency in the Diagnostic Series.⁹¹ If so, there would have been no need for the embedded variants “*Touch of Sîn : Hand of Sîn”, since the latter expression would have already encompassed the former. Furthermore, one might question whether ancient readers or audiences necessarily expected the manifestation of *all* bodily phenomena recorded in an entry, in order for that entry to be relevant to a medical situation. Given the presence of other accompanying medical signs (e.g., heavy eyes), was the detection of pulsation in strands of only the feet (and not the hands) necessarily irreconcilable with the statement “the strands of his hands and his feet pulsate” (Example 9b)?⁹² If not, what would have been the practical need for the embedded variants “*strands of his feet : of his hands and his feet”?

In short, while embedded variants explicitly show how earlier independent variants were combined together, the absence of such visible signs of editorial activity is not an indication that it did not occur. Written descriptions similar to those from Middle Assyrian Assur (Example 8a) and Middle Babylonian Nippur (Example 9a) could have been consulted as sources during the serialization of Sa-gig, but left no trace in existing Sa-gig manuscripts as embedded variants. Not enough is known to draw firm conclusions about the textual history of Sa-gig precursors and their precise modes of transmission. However, we should be aware that the creation or non-creation of embedded variants is not a mechanical process of comparing and combining available texts, but an interpretive choice that involves the exercise of judgment whether one is looking at separate texts or variations of a single text, and whether differences in written description point to the same or different phenomena. The evidence seems to allow for a diversity of scenarios involving different answers to the question of whether authors intended to depict the same or different phenomena, and whether audiences necessarily interpreted embedded variants in the way authors intended. Consider these variants (§ EV.3.3):

- (10)b. TDP 36:19 = DPS XXXVII A 19
 DIŠ MUN[US *ina* MURU]B₄-šá SĪG-át SAG ŠĀ-šá IM *le-qí* : ŠĀ-šá IM *ša-bit*
 BA.ÚŠ
 If a woman is struck [in] her [waist], her epigastrium is taken with wind :
 her belly is seized with wind; she will die.

⁹¹ “Touch of Sîn” does not seem attested in existing Sa-gig manuscripts. On the other hand, note the occurrences of SĪG-(i)š^d30 (“Strike of Sîn”) at DPS X B r. 1; DPS 15:10’; 19/20:29’; TDP 40:46; and *nikipti*^d30 at TDP 40:42.

⁹² Or is it possible that, in such cases, failure to detect pulsation in the strands of the sick man’s hands would be attributed to limitations in the physician’s competence or to variations in the way bodies of different patients react?

On the one hand, the decision to combine the two embedded variants above (rather than leave them as two separate entries) may suggest that the same phenomenon was in view, and that the sick woman suffers from internal ‘wind’ in parts of her body that may be plausibly identified as ‘epigastrium’ (SAG ŠĀ) or ‘belly’ (ŠĀ).⁹³ Sa-gig entries with similar bodily descriptions, diagnostic verdicts, or prognoses are often juxtaposed together. The choice to present two written descriptions as embedded variants instead of juxtaposed entries, therefore, may be thought to suggest an even closer relationship between the descriptions. In support of this interpretation are embedded variants that consist of logographic-syllabic writings such as *mi-qit : pi-i* : KA (§ EV.1.1) and GÛN.A : *ba-ru-um* (§ EV.1.2). Although an exact one-to-one relationship cannot always be assumed between a logogram and its corresponding syllabic form, attested cases (§ EV.1.1 and § EV.1.2) employ the most common and prosaic meanings of logograms cited and seem to represent alternative written forms of the same terminology and phenomena.⁹⁴ Even when different terms are used, they are often close synonyms that leave little doubt the same idea is expressed: “it shudders, *ditto*, it jitters” (§ EV.2.5); “it prolongs from sunset to the morning watch : it lasts overnight” (§ EV.2.1).⁹⁵ In yet other cases, one variant may convey the straightforward observation of a phenomenon, while another provides the interpretation or explanation for that observation. An infant who “keeps jittering (and) crying” was understood as one who “keeps becoming confused” (§ EV.2.6), while a patient with the sensation of lice crawling on his body “does not scratch”, because “he brings up his hand (but) there is nothing” (§ EV.4.2). In all these instances, different written forms of the same phenomenon are expressed as embedded variants (rather than separate Sa-gig entries) for purposes of textual serialization, in order to avoid redundant entries in what already looked to be a voluminous Sa-gig compendium.

On the other hand, Example 10b may depict two separate bodily phenomena (i.e., “epigastrium taken with wind” and “belly seized with wind”) that could be

⁹³ Note also other parallel entries that involve different terminology for body parts that are closely related: [DIŠ in]a a-ḫi-šu ša ZAG ṛú-za-[qat-su ŠU ḏIštar] (“[If] it stings [him] in his right arm; Hand of Ištar”; VAT 11122, obv. 10); DIŠ MUD Á-šu šá 15 ú-za-qat-su ŠU ḏ1[5] (“If his right arm socket stings him; Hand of Ištar”; TDP 10, rev. 13 = DPS X B rev. 13 = DPS 10:67’).

⁹⁴ The embedded variants *mi-qit : pi-i* : KA (§ EV.1.1), for example, probably reflect earlier independent variants such as **mi-qit pi-i* and **mi-qit* KA. Neither form is common in medical texts (cf. non-medical uses of *miqit pî* in CAD M II, 105, §4). In the context of embedded variants, the meaning of *mi-qit : pi-i* : KA (§ EV.1.1) seems more likely to be “*miqit pî* (with *pî* possibly written logographically as KA)”, rather than “*miqit pî* or *miqit* KA (with meanings of KA other than *pî*)”.

⁹⁵ Synonymy may not always be evident. Take, for example, the variants IM KIR₄-šú KÚM : *ša-bit*, “the breath of his nose is hot : is seized” (§ EV.2.2). One might imagine that two separate phenomena were intended: 1) hot breath, 2) seized breathing. Note, however, that the influence of “fevers” or “feverishness / hotness” (KÚM) can also be expressed by the verb *šabātu* (‘to seize’), as in the commentary entry: KÚM-šú *mit-ḫar* || DÛ SU-šu *ša-bit* (“His fever is evenly high” means the whole of his body is seized). Comm. Sa-gig 1-3 = STT 403, rev. 55 in Wee 2012, 544, 549, 560-561.

efficiently combined, because they were manifestations of the same medical condition (“a woman is struck [in] her [waist]”) and resulted in the same prognosis (“she will die”). In our thought experiment on Examples 8 and 9, we saw that alternative written versions of the same phenomenon could be subsumed simply under a single description without the use of embedded variants. The existence of embedded variants, therefore, may be thought to reflect the intention of demarcating separate phenomena. Of relevance here are embedded variants that arise out of possible orthographic (§ EV.7) or phonological (§ EV.8) confusion, or that consist of semantic opposites (§ EV.6) or incommensurate expressions (§ EV.12), where pairs of variants obviously do not refer to the same phenomena. One can easily imagine how the visually similar signs DAB and UMUŠ might have been mistaken for each other (§ EV.7.4), or how misunderstandings in dictation might have produced the similar sounding expressions *ina ukulti* and *ina qūlti* (§ EV.8.1). An editor, unaware of the contexts in which independent variants developed, might therefore have chosen to preserve all variants lest he inadvertently omit the original one. This cautiousness extended even to variants that convey ideas that are opposite or mutually exclude each other. Contradictory prognoses that the sick man “will live : will die” (§ EV.11.2) are not rare occurrences. Along the same lines are embedded variants such as “his foot on the left : right” (§ EV.6.2) and “he has no spittle : (spittle) keeps rolling down” (§ EV.6.3).

One could always treat embedded variants pertaining to separate phenomena as nothing more than a pragmatic, concise method of expressing disparate information. The kinds of contextual readings for Sa-gig that we earlier saw, however, reflect impulses to account for compendium forms and structures and to explore possible relationships between items presented as variants. There is no indication that editors of serialized texts intended later audiences to pick out the ‘correct’ variant, or that two embedded variants in the same manuscript were not both portrayed as valid. Whatever the textual history behind embedded variants, once they were transmitted and received as features of serialized texts, they all became integral to the logic and interpretation of the narrative. Editorial motivations in creating embedded variants need not, in every instance, correspond to reader responses in interpreting such variants. Commentators, in particular, never denied the validity of anything in their base texts, and the following examples suggest how they attempted to reconcile perceived contradictions in embedded variants.⁹⁶

(11) b. TDP 4, obv. 1 = AO 6682, obv. 1

DIŠ SAG.KI *he-si-ma* KÚM-*im* : SED ʾŠU⁴ Kù-*bi*

If he (feels) covered in the temple and it becomes hot : cold; Hand of the Stillborn Child.

⁹⁶ It is true that commentators did question the ‘usual’ (*kayyān*) meaning of disgusting substances (*Dreckapotheke*) named in therapeutic texts and sought to uncover their true identities. However,

- c. Comm. Sa-gig 4(b) = BM 66965 + 76508, obv. 7–8
 ... : SAG.K[I ...] / [...] ^dPA.BIL.SAG ru² ku DIŠ KÚM-*im* u SED : *ina* ITI.GAN
^dUTU *ina* ^{má1}PA.BIL.SAG GUB-*ma* EN.TE.[NA ...]
 The temple ... ^dPa-bil-sag⁹⁷ ... “If it becomes hot and⁹⁸ cold.” “In the month
 Kislimu (IX), the sun stands in the zodiacal sign ^{má1}Pa-bil-sag and winter
 ...”

While at least one Sa-gig manuscript (AO 6682 = Example 11b) contains the semantically opposite embedded variants KÚM-*im* : SED (“it becomes hot : cold”; § EV.6.1), the base text employed by the commentator (Example 11c) apparently read KÚM-*im* u SED (“it becomes hot and cold”).⁹⁹ The latter reading is, in fact, attested in several other Sa-gig entries that describe the sick person, his temple, the tip of his nose, or his belly as “hot and cold” or “hot-cold” (KÚM u SED).¹⁰⁰ Given how KÚM u SED functioned as a standard expression in Sa-gig, the embedded variants KÚM-*im* : SED (Example 11b) may have come to be reinterpreted and rewritten as KÚM-*im* u SED (Example 11c) in later Sa-gig manuscripts, whether intentionally or not.¹⁰¹ If this was indeed so, such scribal tendencies illustrate how audiences understood even opposite variants like KÚM (‘hot’) and SED (‘cold’) to be both valid in the text. In any case, neither KÚM-*im* : SED (“it becomes hot : cold”) nor KÚM-*im* u SED (“it becomes hot and cold”) clearly defines how one should envision the described phenomenon. The commentator’s subsequent argument suggests a model.

this does not mean that *Decknamen* were invalid parts of the base text, just that they were not to be interpreted at face value.

97 The signs drawn in the copy of CT 51, 136, obv. 8 are ^dPA.BIL.SAG.ṚGÁ.ŠÈ, and Genty 2010, 31 has followed this reading. Traces on the original tablet, however, bear closer resemblance to ^dPA.BIL.SAG ru² ku.

98 The hand-drawn copy of CT 51, 136, obv. 8 depicts the reading KÚM-*im*-šú SED (“it becomes hot for him (and/or?) cold”), which is, again, adopted by Genty 2010, 31. My examination of the original tablet, however, suggests the reading KÚM-*im* u SED (“it becomes hot and cold”), where the wedge of the *u* sign is significantly larger than wedges used for disjunction signs elsewhere on the same tablet.

99 This type of variation is found also among manuscript copies of DPS 26:29’, which include either the disjunction sign (MS B = BM 47753, line 25’ = § EV.6.3) or the conjunction *u* (MS A = STT 91+287, line 27’) at the same position in the text.

100 Note the attestations of KÚM u SED (“hot and cold” / “hot-cold”) for the sick person (TDP 3:50; [7:63’]; 13:i24’, 29’, 32’), his temple (TDP 4, obv. 17), the tip of his nose (TDP 6, obv. 22, 23), and his belly (TDP 13:ii11, 12). One may be tempted to interpret this conjunction as \bar{u} (“or”), as yet another notation that separates embedded variants like the disjunction sign, KI.MIN (“ditto”) or $\bar{l}u$ (“or”). However, the question whether *u* functions as such a separator arises mainly in the context of this single expression KÚM u SED, and there is tenuous evidence that \bar{u} (“or”) was regularly used otherwise to indicate embedded variants.

101 It seems less likely that the standard expression KÚM u SED should develop into KÚM-*im* : SED, than that KÚM-*im* : SED should end up as KÚM-*im* u SED.

Although the argument is somewhat obscured by the damage in Example 11c, the commentator seems to be analyzing the components of SAG.KI ('temple'), with SAG being an abbreviation for the constellation/zodiacal sign ^dPa-bil-SAG, and KI having its logographic meaning 'with' or 'place'.¹⁰² The location of ^dPa-bil-sag, therefore, corresponds to the human temple. Furthermore, since BIL and KÚM are values of the same cuneiform sign, the name ^dPa-BIL-SAG would also suggest the idea of a 'head' (SAG) that is 'hot' (KÚM). As the commentator correctly observed, the hot sun stands in the zodiacal sign ^{mú}Pa-bil-sag (Sagittarius) during the cold winter month Kislimu (Nov/Dec). We therefore have here a complex of ideas associating "hot ^{mú}Pa-bil-sag : cold winter" with "hot temple : cold sensation". The commentator likely alluded to a situation whereby, though the sick man's temple feels hot at the healer's touch, the sick man himself exhibits behavior (i.e., shivering and chills) that suggests he experiences cold. When sickness and inflammation result in the elevation of the body's thermostatic set point, the patient feels colder relative to the same environmental temperature, while physiological processes simultaneously increase his body temperature to meet the new set point. This phenomenon is readily attested today and was probably recognized by ancient healers, even if they could not explain the mechanics behind it. One thing at least is clear: Whether KÚM ('hot') and SED ('cold') existed in the text as embedded variants or conjoined items, the commentator did not admit that their meanings were irreconcilable, but sought models by which both could plausibly co-exist.

(12) b. TDP 1:10–11 (DPS I, 7–8)

DIŠ ŠÁḪ BABBAR IGI GIG BI TIN : munusKALA.GA DAB-su / DIŠ ŠÁḪ SA₅ IGI
GIG BI ana ITL.3.KAM : ana U₄.3.KAM ÚŠ

If he sees a white pig, that sick man will live : hardship will seize him. If
he sees a red pig, that sick man will die in three months : in three days.

c₁. Comm. Sa-gig 1(c) = SpTU I, 28, obv. 9–10

[DIŠ ŠÁḪ] Ḫ SA₅ [IGI GIG B]I a-na ITL.'3'.KAM : ana U₄.[3.KAM ÚŠ] á E-ú /
[ki]-i 'na'-a[q-du ana 3 U₄-mu] 'ki-i' la na-aq-d[u ana] '3' ITI ÚŠ

"[If he sees a] red pig, [that sick man will die] in three months : in [three] days," which it said. If he is critically sick, he will die [in three days]; if he is not critically sick, [in] three months.

102 In astronomical diaries, horoscopes, and other astrological texts, the abbreviation for Pa-bil-sag is PA (e.g., Sachs and Hunger 1988, 18; Rochberg 1998, 29), and the abbreviation SAG here represents a contrivance on the part of the commentator in order to associate Pa-bil-sag (abbreviated SAG) with the 'temple' (SAG.KI). In Example 11c, the switch in determinatives from ^dPA.BIL.SAG to ^{mú}PA.BIL.SAG is intriguing, but the argument is not clear enough for us to be certain whether this was a deliberate attempt to distinguish the constellation Pa-bil-sag from the zodiacal sign of the same name.

c₂. Comm. Sa-gig 1(b) = SpTU I, 27, obv. 16'–17'

[*ki-i* ^{lú}G]G ^{munus}KALA.GA IGI TIN *ki-i* ^{munus}KA[LA.G]A NU IGI BA.ÚŠ *šá-niš*
ki-i / [GIG *na-qu-d*]u *a-na* 3 U₄-mu *'ki-i'* la na-[a]q-du ana ITI 3 ÚŠ : ...

“[If] the sick man sees hardship, he will live. If he does not see hardship, he will die.” Secondly, “if [the sick man] is critically sick, he will die in three days. If he is not critically sick, in three months.”

Example 12b contains two pairs of embedded variants: “will live : hardship will seize him” and “in three months : in [three days]”. The latter pair is addressed in the commentaries of Examples 12c₁ and 12c₂, where the extent to which the patient is sick determines whether he dies “in three days” or “in three months”. In other words, both time references were considered valid in limited and mutually exclusive situations, but not under the same circumstance. A different hermeneutic was applied to the other pair of embedded variants. In Example 12c₂, the commentator treated the statements “that sick man will live” and “hardship will seize him” not as alternative prognoses, but as alternative ways of referring to the same situation, i.e., for the sick man to live is to be seized by hardship. In this, the commentator was likely encouraged by other Sa-gig prognoses that speak of hardship but promise recovery.¹⁰³ Moreover, although the white pig represented a good sign that the patient would recover, hardship could not be avoided, since an erudite argument defined the ‘pig’ as an omen for ‘hardship’: The logogram for ‘pig’ (ŠÁḪ) is the same cuneiform sign as the logogram for ‘youth’ (ŠUL), which in turn has the same meaning as another logogram GURUŠ (‘youth’) that is the same cuneiform sign for the logogram KALA (‘hardship’).¹⁰⁴

In summary, Example 12c₂ consists of two different types of explanations, which provide inconsistent answers to the question of whether the same or different phenomena are intended in embedded variants. On the one hand, the variants “in three months : in three days” obviously cannot denote the same period of time, and the commentator did not attempt to equate them, but accounted for their differences by making them refer to different degrees of sickness. On the other hand,

103 MUNUS.KALAG.GA IGI-*ma* TIN (TDP 4, rev. 33; 8:20; 40:12¹, 115, 116). Note the unnecessary addition in SAL.KALAG.GA ‘IGI-*ma*’ <NU> DIN (TDP 4, rev. 33 = DPS IV A₂ r. 33) and the erroneous transcription *dan-nat* IGI-*ma* DIN! (TDP 40:12 = DPS XL A 12) in Scurlock and Andersen 2005, 176 (§ 8.56), 411 (§ 17.147). Another similar expression NÍG.GIG IGI-*ma* TIN appears in TDP 7:15 (DPS VII A obv. 15); TDP 13:i:50’ (DPS XIII B i 46); TDP 14:iv 60’ (DPS XIV A iv 25).

104 I have described my interpretation of the argument in Comm. Sa-gig 1(b) = SpTU I, 27, obv. 13’ : [š^u-ul]ŠÁḪ : *dan-nu* : ŠÁḪ : ^{lú}GURUŠ : ŠÁḪ [:]’ *šá-ḫu-u* : ŠÁḪ : *le-e-bu* ([š^u-ul]ŠÁḪ) means “hard”. ŠÁḪ means “youth”. ŠÁḪ means “pig”. ŠÁḪ means “li’bu-sickness”. See Wee (2012), 515, 518, 527; cf. George 1991, 146–147 (section 6b). The same argument is not as clearly articulated, but may also account for the reasoning in Comm. Sa-gig 1(c) = SpTU I, 28, obv. 8 in Wee 2012, 533, 534; George 1991, 148–149 (section 6c); and Comm. Sa-gig 1(a) = AO 17661, obv. 15 in Wee 2012, 500, 504, 510–511; George 1991, 146–147 (section 6a).

the commentator perceived the variants “that sick man will live : hardship will seize him” as different expressions of the same event. Regardless of the commentator’s interpretation, it is not entirely clear that an editor had combined these two variants in order to show that they were synonymous. In this respect, they resemble many other embedded variants that lie somewhere in between the extremities of the spectrum, where we are often hard-pressed to determine whether they refer to identical phenomena or to different ones. That being said, the notion that a single compendium entry deals with a single situation can be an attractive one, and ancient audiences might have been more than usually inclined to treat embedded variants in individual entries as synonyms when plausible.

5 Conclusion

Instead of revealing definite rules by which textual variants were created and understood, much of this essay suggests a rather messy picture of textual transmission and hermeneutics. Interpretation, in fact, characterized every stage of the process in which phenomena were filtered through the senses, expressed in language and the medium of writing, communicated to immediate and remote audiences, and envisioned in ways plausible to textual and local cultural contexts. Observation was theory-laden, and the ready availability of language conventions and standard modes of expression contributed to the tendency to perceive phenomena through the lens of preconceived schemata.

The texts, moreover, encouraged readers and audiences to imagine themselves in the role of observer and their local milieu as the setting for written descriptions, however removed they may have been from the original situations of observation. By intentionally juxtaposing or grouping together entries based on shared principles, serialized compendia could shape the meanings of individual lexical items by requiring audiences to interpret them in coherence with larger textual contexts (Examples 1–3). On the other hand, the use of terminology, idioms, and nuances in local professional or socio-cultural environments represented another source of influence, and atypical written descriptions could be conflated with commonly encountered phenomena, even in ways that were not always aligned with principles of textual organization (Example 4). In fact, one wonders whether written descriptions were always transmitted verbatim, or whether alternative lexical and grammatical choices could have allowed for forms that were a better fit with textual contexts (Example 5) or that reflected particular interpretations of phenomena (Example 6).

One inevitable limitation in this study is the fact that our examples are confined to cases where written descriptions display *visible* disparities. The influence of oral instruction or idioms widely circulated in speech, which had the potential to shape how local audiences interpreted fixed written forms, are often inaccessible

to us. The medium of language, moreover, was a dynamic one. Even for technical texts of ancient science and medicine, we may overestimate the consistency or extent that language was employed to the same degree of precision. Ancient observers could have allowed some leeway for different descriptions of what they perceived as the same phenomena. On the other hand, phenomena that could be differentiated in certain contexts might, in other contexts, be described with the same written expressions. The strictness with which language was used depended, in part, on whether authors considered particular distinctions in phenomena significant for purposes of diagnosis or prediction in their medical, astronomical, and omen texts (Example 7).

While pairs of embedded variants constitute visible artifacts of editorial activity, it is often uncertain whether these pairs were intended to communicate the same or different phenomena (Example 10). On the one hand, alternative expressions of the same phenomena could be subsumed under a single representative description, so as to leave no trace in the record as embedded variants (Examples 8 and 9). If so, embedded variants (where they do exist) might reflect the aim of demarcating separate phenomena. On the other hand, serialized compendia already provided an avenue by which entries dealing with similar but not identical phenomena could be juxtaposed or grouped together. The choice to represent two descriptions as embedded variants (instead of juxtaposed entries), therefore, may suggest the intention to depict an even closer relationship between the descriptions. Cuneiform commentaries provide inconsistent answers to the question of whether audiences were supposed to envision embedded variants as the same or different phenomena (Example 12). The idea that a single compendium entry addressed a single encountered situation, however, may have encouraged audiences to treat embedded variants in single entries as synonyms or to find ways to reconcile any apparent contradictions between the variants (Examples 11 and 12).

Multiple factors contributed to the ways ancient audiences envisioned phenomena based on written records, ranging from lexical, grammatical, and orthographic choices in written cuneiform texts and principles of organization in structured compendia to the professional and popular uses of language expressions, idioms, and labels in local contexts. Even allowing for standardizing influences in shared scribal cultures on how audiences interpreted texts, we still find that hermeneutics could vary on a case-by-case basis. The imagined dichotomy between textual authority and sensory experience is a misleading paradigm for understanding how ancient audiences reproduced phenomena from writing. The situation was much more dynamic. Both sensory and textual sources yielded meanings that were pliable and susceptible to influence. Instead of prioritizing one to the exclusion of the other, audiences interpreted phenomena through a mediation between written description and what was plausible in their own experience.

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J. Cale Johnson

Depersonalized Case Histories in the Babylonian Therapeutic Compendia

Abstract: Standard histories of medicine identify Hippocratic texts such as *Epidemics* as the earliest medical case histories in human history. In contrast to the Hippocratic case histories, it is often stated that Babylonian medicine made no use of individual case histories. In this paper, I investigate ‘depersonalized case histories’ in the Babylonian therapeutic corpora (ca. 800–600 BCE, although in many cases probably based on earlier lost sources). On the face of it, the suggestion that certain complex collocations of symptoms derive in a straightforward way from individual cases might seem far-fetched, or at minimum not a demonstrable interpretation. Comparison of Babylonian therapeutic texts with the treatment of ‘cases’ in Mesopotamian law, in particular in so-called imperial rescripts in which an individual case is converted into a general statute, suggests that certain clusters of symptom descriptions actually represent ‘depersonalized’ case histories in which personal details have been intentionally omitted from the tradition in order to make these cases suitable for inclusion within *authoritative* (or as I suggest we call them *infra-structural*) technical corpora. The identification of this process of ‘depersonalization’ may also play an important role in bringing epistemological critiques of one kind or another (Foucault on ‘the clinical sciences’ or Forrester on ‘thinking in cases’) into a fruitful dialogue with Mesopotamian materials.

1 Introduction

Technical compendia, ancient or modern, impress us all with their apparent completeness, reliability, and timelessness, of essential facts presented in a transparent, ostensibly non-rhetorical format. Moreover, editions of ancient technical compendia, particularly those that can be easily mapped into present-day technical disciplines (e.g., the Astronomical diaries)¹ leverage the force, rhetorical and otherwise, of modern science and make no apologies. But then again astronomical and mathematical materials from ancient Mesopotamia – even if somewhat marginalized in general histories of science – have always enjoyed a privileged status as exemplars of scientific thought within Assyriology. Questions of their empirical validity, for example, have become pre-eminent in discussions of ancient Mesopotamian science,² and the absence of a complex semiotics of observation (much less

1 See Sachs and Hunger 1988, 1989, 1996.

2 Most recently Rochberg 1999; 2004; Grasshoff 2011 and Rochberg 2011.

the social variables that occur in therapeutic texts) have allowed investigations of Babylonian astronomy and mathematics to be carried out without too much attention paid to the textual or social mediation of these disciplines.³

As always, the discussion of these definitional issues within Assyriology reflects on-going debates about the history of science within the broader academy. As Rochberg has repeatedly emphasized (see her contribution in this volume as well), there are usually two comparanda in the minds of readers: the supposed invention of science in ancient Greece and the development of ‘modern’ scientific methods in early modern Europe. Since Rochberg has dealt with the question of Greek rationalism at length in this volume, let me say just one or two words here about how recent methodological discussions of how we should investigate ancient science are relevant to the definition of medical case histories as a transhistorical genre. In print perhaps the most enlightening exchange in recent years was in a broadside from Lorraine Daston entitled “Science Studies and the History of Science” (2009) and the response it drew from Peter Dear and Sheila Jasanoff (2010). Leaving aside the *hinter den Kulissen* aspect of the two pieces (and bracketing the discussion of disciplinary identity, which plays out quite differently in work on the ancient world), the key issue raised in Daston’s paper was the problem of anachronism and its usual doppelgänger teleological or Whig histories of scientific reasoning. Simplifying Daston’s argument somewhat, historians of science act like historians and seek to drive out anachronism and Whig histories at all costs, largely by burrowing into archives and building up micro-historical explanations that also have explanatory power at the macro-historical level, while the Science and Technology Studies (STS) movement has not learned these lessons and continues to place a ‘presentist’ ideological critique at the center of their agenda.

If we take the twin problem of anachronism and Whig histories seriously, *mutatis mutandis*, the key danger we face in attempting to expand the genre of ‘medical case history’ into a time and place where it has not previously been identified, viz. ancient Mesopotamia, is that we map a Graeco-Roman technical genre into a decidedly non-Graeco-Roman historical context. Thus much of this paper is concerned with describing how case histories worked in specifically Mesopotamian contexts. It should come as no surprise that case histories are very different things in the Graeco-Roman world and in ancient Mesopotamia and that consequently we will be pre-occupied here with defending the existence of case histories in Mesopotamia rather than carrying out a point-by-point comparison of Graeco-Roman and Mesopotamian case histories. Only through a careful investigation of the role of juridical models in ancient Mesopotamian thought (especially scientific thought), and in particular the role of depersonalization in transforming a legal rescript into

³ Recent work by Robson and on the social history of Mesopotamian mathematics (2008) and empiricism in the Neo-Assyrian court (2011) or Ossendrijver on the social network behind late Babylonian astronomy (2011) are the outliers that prove the rule.

a new statute promulgated by the ruler, can we begin to see how depersonalization was a standard institutional response to new cases and situations in Mesopotamian elite culture. And while we should keep the ideological critique of STS in view, Daston's suggestion that we focus on the micro-historical context of Mesopotamian case studies and the way in which they impact on macro-historical questions will preoccupy us here.

Central to our description of 'depersonalized case histories' as a legitimate element in the history of medicine will be a heightened concern for the relationship between notational practice and the institutional contexts in which notational practice takes place. This emphasis fully agrees with the "technical turn in the humanities", as Ben Kafka has recently christened it:

Inspired largely by science studies, humanists have started to think seriously about the technics of knowledge. With respect to the history and theory of paperwork, we can probably trace this approach back to Bruno Latour's essay "Visualization and Cognition: Drawing Things Together," which illustrated how science studies might illuminate the production of other kinds of official or quasi-official knowledge.⁴

But even if Science (and Technology) Studies has largely inspired this 'technical turn', Daston's recent paper on "The Sciences of the Archive" (2012) allows us to remain agnostic vis-à-vis the on-going debates between STS and orthodox historians of science. In the uncertain zone of intersection that sometimes exists between Graeco-Roman and Babylonian medicine, however, the interdependence between notational technique and institutional practice operates quite differently. And, in fact, much of what I suggest in this paper could be boiled down to a very simple description of the difference between medical case histories in Greece and Mesopotamia. In Mesopotamia, I would like to suggest, the medical discipline was thoroughly professional and indeed fully institutionalized: would-be 'physicians' were expected to have mastered a fixed corpus of both written and oral tradition, and the written materials were quasi-official standardized compendia. When the ruler chose his royal physicians, they would invariably have been drawn from the most accomplished members of these quasi-official institutions. The institutional contexts at work in Mesopotamia also, as I propose below, led to a fairly strict implementation of a 'common ground filter' that prevented disputed, largely oral materials from being introduced into the written corpus. In the *Introduction* to the volume I have written about the 'infrastructural compendia' that came into existence in this type of environment, so I have not reiterated those arguments here.

On the contrary, the Hippocratic corpus, as specialists in Graeco-Roman medicine regularly point out, is a mixed bag of genres meant for a widely divergent set of audiences. Moreover, since the social character of medicine in the Graeco-Roman world seems to have been far less institutional in the strict sense of the term,

⁴ Kafka 2012, 110, citing Latour 1986.

it is little wonder that teacher-student relationships and informal networks took the place of institutional entities in the eastern Mediterranean. Informal networks made up of teacher-student affiliations necessarily require that the teachers in question issue new texts under their own names, an idea that only takes place on a handful of occasions in all of cuneiform literature. Thus from a macro-historical point of view, it is precisely the absence of formal, royally sanctioned institutions that allows a public and explicit history of leading medical thinkers to arise. If we look at the place of the case histories in *Epidemics* in the broader history of Graeco-Roman medicine, it is fairly clear that the case histories were central to Galen's positioning of himself with respect to 'Hippocrates' and the epistemologically oriented schools of thought in Hellenistic Greek medicine.⁵ Moreover, as van der Eijk has emphasized, Galen's transformation and repurposing of individual case histories drawn from the *Epidemics* was actually meant to further his own brand of 'qualified experience', itself an attempt at a partially Aristotelian reading of the *Epidemics*.⁶

As these few citations make clear, both the micro- and macro-historical aspects of the case studies contained in the *Epidemics* have been the object of extensive study and reflection, but the same cannot be said for the Babylonian materials at either level of analysis. Unlike the diagnostic materials, for which we have a well-known historical moment at which the tradition was reorganized and even the name of the editor in charge of this reorganization, viz. Esagil-kīn-apli, the therapeutic materials are authorless and include few, if any, traces of internal reorganization or revision. In our efforts to develop a meaningful historical background for the Babylonian therapeutic corpora – the largest in the ancient world other than the materials in Greek and Latin – we are therefore thrown back on the texts themselves, nearly all of which are late, fragmentary and skeletal. Rather than making this into a tale of two cities, or better a tale of two therapeutic traditions, I would also like to suggest that the Mesopotamian materials raise crucial theoretical issues, particularly in reference to recent discussions of 'styles of reasoning' and historical epistemology (see my discussion of the 'two paradigms' in the *Introduction*).

2 'Thinking with cases' as an epistemological paradigm

While specialists in ancient medicine have been preoccupied by a range of questions that are specific to the Hippocratic case histories, historians of science have

⁵ van der Eijk 2007; van der Eijk 2012; Berrey 2013.

⁶ van der Eijk 2007, 293; van der Eijk 2012.

increasingly focused on the compilation of compendia of case histories as a distinct form or style of reasoning. If the depersonalized case histories of the Babylonian therapeutic tradition were central to early scientific thought in Mesopotamia, as I would suggest, the nuances of ‘thinking with cases’ within particular sectors of specialized knowledge (including the development of different types of case-driven compendia) becomes one of the central questions within a history of early Mesopotamian scientific reasoning. Can we imagine a brand of Mesopotamian scientific thought that is more concerned with ‘procedural’ than ‘empirical’ truths? Or more simply, how would a member of the Mesopotamian literati have defined a given statement or description as true, valid or correct? What I would like to suggest here is that the juridical paradigm, which was used to validate particular statements as true, generally valued procedural and hierarchical correctness over a narrowly defined set of correspondences to the natural world. The obvious corollary is that a specifically medical ‘empiricism’ is not built into the system, but only emerges in moments of rupture or reorganization.

Historians of science such as Crombie, Hacking and Forrester have argued for distinct ‘styles of reasoning,’ and Forrester in particular has emphasized the special relevance of ‘reasoning in cases’ as a seventh style of reasoning alongside the six that Crombie originally outlined.⁷ Forrester traces case-driven epistemological models – largely case-driven pedagogical models – through Kuhn and the use of the Socratic method in American law schools before arriving at the work of Michel Foucault. Aristotle had famously denied the relevance of individual facts, to which Foucault juxtaposes the emergence of the ‘clinical sciences’:

The examination that places individuals in a field of surveillance also situates them in a network of writing; it engages them in a whole mass of documents that capture and fix them ... Thanks to the whole apparatus of writing that accompanied it, the examination opened up two correlative possibilities: firstly, the constitution of the individual as a describable, analyzable object ... and, secondly, the constitution of a comparative system that made possible the measurement of overall phenomena, the description of groups, the characterization of collective facts, the calculation of the gaps between individuals, their distribution in a given ‘population’. One is no doubt right to pose the Aristotelean problem: is a science of the individual possible and legitimate? A great problem needs a great solution perhaps. But there is the small historical problem of the emergence, toward the end of the eighteenth century, of what might generally be termed the ‘clinical’ sciences; the problem of the entry of the individual (and no longer the species) into the field of knowledge ...⁸

Foucault goes on to introduce his notion of biopower, which Forrester quite rightly situates in Foucault’s equally well-known “attachment to traditional political theory, with its emphasis on sovereignty and law as the source of legitimate power and

⁷ Forrester 1996, apud Furth 2007.

⁸ Foucault 1977, 185–191, apud Forrester 1996, 12.

authority within the nation-state”.⁹ Foucault correctly recognizes the centrality of notational practices in the development of these ‘new’ clinical sciences, but of course there is nothing new at all about attaching the particular details of the event, situation or population in which an individual finds him- or herself within a document. This was the hallmark of the earliest administrative records in Mesopotamia (ca. 3300 BCE) and remains the predominant goal of administrative systems throughout the rest of Mesopotamian history. Indeed, within the specific intellectual history of Mesopotamian cuneiform traditions, it is the very opposite phenomenon, viz. the intentional ‘depersonalization’ of an individual event that was exceptional.

Within the Assyriological literature itself, depersonalized texts need to be rigorously distinguished from so-called ‘scribal exercises’ or ‘model’ texts. Scribal exercises and model texts are normally identified in the administrative or legal genres by the absence of personal names, dates and locales in combination with an overly schematic set of numerals or internal calculations. Texts such as these represent an abstract template that has been extracted from an administrative or legal procedure (and the innumerable documents that conform to the template) rather than an individual case. In speaking of a text as ‘depersonalized’ I mean something quite different: namely, an individual case, transaction or situation (originally specified by the individuals involved, location and date) from which the distinctive traces of individual participants have been purposefully removed. This depersonalization – entailing a host of reconfigurations in the text itself – was seen as a necessary step before a new ‘case’ could be introduced into a standardized compendium. And at least in Mesopotamia, the most important example of this type of depersonalization and codification has only been unearthed in recent years in the historical procedure through which a new legal statute could be promulgated by a Mesopotamian ruler, although processes of abstraction and summary within second-order administrative documents have a long and complex history in Mesopotamia (see *Depersonalization in Mesopotamian legal compendia* below).

One of the most important discussions of case histories as a ‘style of reasoning’ may be found in Charlotte Furth’s introduction to *Thinking With Cases: Specialist Knowledge in Chinese Cultural History* (Furth *et al.* 2007). As Furth and many of the contributors to this volume reiterate, the compilation of case histories makes more sense in certain epistemologies and the institutional contexts in which these epistemologies are rooted.

Cases are connected to one another by common patterns, while at the same time they never deny ‘the priority of individual cases over any possible generalizations invoking them.’

⁹ Forrester 1996, 12; Forrester cites Foucault’s “later work on governmentality and pastoral power”, in the form of several short papers and interviews (for example, Foucault 1981, 225–254 and 1988), but see now the new publications of his courses at Collège de France 1978–1980.

Whatever the field, a case record sets out some truth claim that is specific to an individual situation, while the accumulation of individual narratives forms an archive available for consideration in common.¹⁰

One point in Furth's discussion that is of particular relevance to the Mesopotamian situation is the priority given to individual cases, even in the context of generalization. This notion is particularly relevant in that Mesopotamian texts, as a rule, do not engage in explicit meta-commentary or theorization, preferring to allow the classification and configuration of individual cases to project implicit theoretical models. This may have resulted from the reluctance on the part of Mesopotamian scribes to put in writing any statement that did not belong to the discursive 'common ground' of an entire school. But even beyond this reluctance, I would also like to suggest that legal processes of adjudication served as a privileged epistemological model for the establishment of technical realities of professional practice in Mesopotamia, even the specifically technical questions of Babylonian medicine (on the specific interaction between textual compendia, the performative speech at the center of an act of judgment and professional identity, see the *Introduction* to this volume).

3 Depersonalization and imperial rescripts in the Mesopotamian legal tradition

One of the most vexed and contentious questions in the entire history of Mesopotamian law centers on the status and fixity of the Mesopotamian law codes such as the Codex Hammurapi. These collections of legal statutes are often taken as purely ideological devices, meant to impress upon the population the role of the ruler as a 'just king' and lawgiver. This point of view is perhaps best represented in F. R. Kraus's famous paper "Ein zentrales Problem des altmesopotamischen Rechtes: Was ist der Codex Hammu-rabi?" (1960). Kraus suggested that "the codes were an academic exercise, part of the proto-scientific activity of scribes, on a par with the omen lists and medical treatises", and as Westbrook goes on to say, "[t]his thesis, further expanded by Bottéro, has gained wide acceptance among Assyriologists".¹¹ Put somewhat differently, the *communis opinio* was that the codes were not meant to be cited in the way that a magistrate in our own age might cite a standardized compendium of legal statutes.

Kraus's statement that the Code of Hammurapi was "part of the proto-scientific activity of scribes, on a par with omen lists and medical treatises" may strike many readers, particularly those not trained in Assyriology, as odd, and the use of

¹⁰ Furth 2007, 4.

¹¹ Westbrook 1989, 201.

juridical texts and procedures as models for the validation and codification of medical knowledge certainly contravenes one of the founding principles of Foucault's famous etiology of the clinical sciences.¹² Nonetheless, the textual form of Greek law codes played a substantial role in Langholf's path-breaking work on the earliest strata in *Epidemics* and their precursors in *On Diseases*, and Langholf's work in turn served as one of the major inspirations for Geller's work on the similarities between the earliest Greek medical texts and the Mesopotamian *Diagnostic Handbook*.¹³ The idea behind Kraus's statement, however, finds its best exposition in Bottéro's description of the role of the Code of Hammurapi as a model for other forms of scientific endeavor, not least the omen compendia.

Les « lois » des « codes », ce sont en réalité des « cas » (le « code » de Hammurabi les appelle lui-même des « décisions de justice »): c'est-à-dire des problèmes juridiques suffisamment dégagés de leurs circonstances trop individualisantes, exposés en leurs données essentielles, puis résolus selon l'esprit de ce droit non écrit qui était le seul en vigueur en Mésopotamie. La casuistique de ces « codes » consistait à grouper ces problèmes autour d'un même sujet, dont on faisait varier les données, de manière à montrer le plus d'aspects possibles d'une question, un peu comme varient les éléments de nos paradigmes grammaticaux.¹⁴

Bottéro's statement, though still reliant on the idea that the "spirit of the unwritten law ... was the only (legal) force in Mesopotamia", makes it clear that the Code of Hammurapi was conceptualized as a collection of individual cases and that it served as a model for the compilation and reorganization of other types of 'technical' compendia.¹⁵

In the same foundational paper from Westbrook, whose summary of Kraus we mentioned above, Westbrook reiterated the *communis opinio* that Mesopotamian law codes did not represent normative positive legislation, while at the same time emphasizing that the only Mesopotamian legal instrument that is known to have been used to perform legally binding acts, viz. the royal edict, was

¹² Foucault 1977, cf. Forrester 1996, 13. Foucault's *La vérité et les formes juridiques* (1994), which I know only from a German translation (2003), speaks to many of the issues here in play and is a useful 'introduction' to more recent works tackling the question of how legal procedures are capable of validating knowledge such as Latour 2010 (2002) and Kafka 2012.

¹³ See Langholf 1990, 70–71 and Geller 2004 respectively.

¹⁴ Bottéro 1974, 173.

¹⁵ As already made perfectly clear in Bottéro's account and subsequently elaborated in Steinkeller's well known paper entitled "Of Stars and Men: The Conceptual and Mythological Setup of Babylonian Extispicy" (2005), legal models were central to native conceptualization of omnia, and thus central to Mesopotamian theories of knowledge and belief systems more generally. Fincke and Rochberg have revisited these links in recent years (Fincke 2007 and 2009, Rochberg 2009 and 2010, references courtesy N. Anor, who will treat these issues in his dissertation). We should carefully avoid conflating native beliefs about the source and legitimacy of ominous signs with similarities in procedure and textual production in two distinct areas of specialized knowledge, viz. law and medicine. For a sustained critique of 'divinatory empiricism' (a modern construct for which there is no Mesopotamian evidence), see Rochberg 2010.

always retrospective; it affects existing and not future contracts. This is in strong contrast to modern legislation, for which the norm is prospective rules. In short, the principal areas of substance in a legal system: property and inheritance, family law, contract and delict – areas that receive the full attention of the cuneiform legal codes – are virtually ignored in the only true legislative instrument of the cuneiform sources, the royal edict.¹⁶

Just a few years after Westbrook's carefully argued summary and defense of the academic character of the law codes, C. Janssen published a curious royal letter issued by Hammurapi's son Samsu-iluna (reigned 1749–1712 BCE, middle chronology) and preserved in four later copies.¹⁷ The letter describes two legal cases involving a type of female priestess known as the *naditu*. These *naditu*-priestesses were seen as married to the sun-god Shamash in Sippar, were not allowed to marry within the human species, and lived together in a cloister throughout their lives.

In both of the legal cases mentioned in the letter, the economic well-being of a *naditu*-priestess was threatened: in the first instance because her family had not provided an endowment for her living expenses, as was the norm, and in the second case because a creditor to whom one of her family members owed money wanted to seize the *naditu*'s slave as payment for the debt. Crucially these two situations are not covered by the famous Code of Hammurapi, which Samsu-iluna's father Hammurapi had established, and Samsu-iluna was forced to develop a new piece of legislation in order to prevent the impoverishment of the cloister. The royal letter published by Janssen is Samsu-iluna's response to these two cases involving hungry *naditu* and, in the words of Dominique Charpin, the letter is "altogether remarkable, both from the standpoint of its composition and from that of its legal significance".¹⁸ The second complaint, for instance, describes a particular legal case:

"The judge Awil-Sin has a claim of money owed by Mar-Shamash, a man from Sippar. Because the latter did not pay it back, he seized Mar-Shamash, saying:

'If you keep your property and I receive nothing, I will seize the slave of your daughter the *naditu*-priestess of Shamash, who lives in the cloister'.

That is what he said."

That is what they told me.

In response to the specifics of this legal case, however, the king does not issue a specific response along the lines of "Awil-Sin is not allowed to seize the slave of the *naditu* in question", but rather issues a general legal rule that looks very much like the statutes that appear in the Code of Hammurapi. As Charpin emphasizes, "[e]ven the style of the passage is altogether similar to the verdicts (apodoses) of the Code of Hammurabi":¹⁹

¹⁶ Westbrook 1989, 217.

¹⁷ Janssen 1991.

¹⁸ Charpin 2010, 74.

¹⁹ Charpin 2010, 74.

A *naditu*-priestess of Shamash whose father and brothers have provided her support for her to live and for whom they wrote a tablet, and who lives in the cloister, is not responsible for the debts or the *ilku*-service of the house of her father and her brothers. Her father and brothers shall perform their *ilku*-service and ... Any creditor who seizes a *naditu*-priestess of Shamash for the debts or the *ilku*-service of the house of her father and brothers, that man is an enemy of Shamash!²⁰

It is precisely this way of transforming a historically concrete moment into an abstract ‘if p, then q’ statement, with the central actors in the original case now replaced with exceedingly abstract descriptions, that I would like to describe as ‘de-personalization’.

Even though the particular data on imperial rescripts was not yet available to Westbrook, when he published his magisterial “Biblical and Cuneiform Law Codes” in 1985, the extended description of a process of ‘generalization’ that Westbrook offered in reference to the *tamitu* texts (a kind of divinatory question posed by an individual) is exemplary. Westbrook describes five steps leading from an individual case to its generalization, but we can focus on just a few key moments in the middle of the process.

In most cases the name of the person for whom the question was being put is replaced by “so-and-so, son of so-and-so” (*annanna apil annanna*). W. Lambert explains: ... “the suppression of the names suggests the reason for the handing down of these documents Just as in law a case once decided can become a precedent so that future parties having the same problem can find the answer without recourse to the expensive and time-consuming process of the law” The third step represents the second stage of generalization, whereby the anonymous precedent is put into casuistic form, and the fourth step is the compilation of lists of the casuistic rules with the addition of their logical variations This ‘scientific’ treatment is necessary because in Mesopotamian eyes it makes the series universally applicable (by exhausting all possible alternatives) and therefore authoritative.²¹

Thus we see that very much the same process that Westbrook described for the *tamitu* texts was eventually shown to exist in the case of the hungry *naditus* as well. The formulation of a version with “so-and-so, son of so-and-so” in place of the name of an individual, well known in certain ritual genres, was one step on the way to a properly casuistic formulation, viz. “If a man” If we can map the process outlined by Westbrook for the *tamitu* records into the specific domain of

²⁰ Charpin 2010, 74.

²¹ Westbrook 1985, 259 (= 2009, 15). Elman’s recent critique of Mesopotamian *Listenwissenschaft* draws heavily on this particular argument from Westbrook, but at least here in Westbrook’s extensive work he is contrasting the particular style and social conditions of the process of generalizing legal cases in Mesopotamia with the use of “abstract principles of law ... in modern systems” (Elman 2014, 26 citing Westbrook 2009, 33, although the quotation here is from Westbrook 1985, 259 = Westbrook 2009, 15). Westbrook goes on to cite the limited evidence for *written* legal reasoning in Mesopotamia, but does not infer that the practice of legal reasoning was thereby hamstrung or deficient.

imperial rescripts, it soon becomes apparent that the process of depersonalization is absolutely central to the preparation of an individual case for inclusion in a compendium.

Charpin cites several other letters from the Old Babylonian period in which this process of depersonalization seems to be attested, but even if we bracket for a moment the long-running disputations about the status of the Code of Hammurapi as a legal instrument or the role of imperial rescripts in shaping the textual history of the Mesopotamian law codes, the process of depersonalization visible in Samsuiluna's letter is manifest and indisputable. Samsuiluna, the ruler of the First Dynasty of Babylon has issued a new piece of prospective law in response to a single case, but in establishing the new statute as authoritative, all extraneous details (including details of time, place and person) have been expunged. Only the bare essentials necessary for understanding the relevant legal issues have been retained. The only feature of the new statute that might set it apart from the statutes in the Code of Hammurapi or other similar Mesopotamian law codes is the absence of the Akkadian conditional *šumma* 'if' at the beginning of the statute. Nonetheless, even in the absence of an explicitly marked protasis, the organization of the new statute into an 'if p, then q' statement is abundantly clear.²² From a literary or discourse analytical point of view, the key difference between the original case and the form that it takes in the royal rescript is the replacement of specific historical actors in the original case with non-specific placeholders like 'a *nadītu*-priestess' or 'creditor', yielding a generally applicable statute. The use of a form of codification that is often associated with Mesopotamian scientific texts was not meant to suggest that the ruler's statement is scientific or empirical *per se*, merely that it has all of the usual features of what I refer to as an 'infrastructural compendium'.

It must be emphasized, however, that the creation of a new statute via an imperial rescript – the process described in the previous paragraph – is only one of the ways in which individual statutes found their way into the Mesopotamian legal codes. Much of the material was simply inherited from earlier compendia such as the Code of Ur-Namma,²³ but Charpin also points to clear instances in which a set of hypothetical cases have been elaborated around a given theme or existing statute such as the statutes surrounding the capture of a runaway slave:

[Section 17] If someone has captured a fleeing slave, male or female, in the countryside and takes him or her back to the master, the master of the slave will have to give the person 2

²² There are significant grammatical issues that I am passing over here in near silence, notably that the rescript makes use of a construct relative construction in which a non-specific or indefinite noun is modified by a relative clause; see generally Johnson 2004. Samsuiluna's statement is also a performative speech act, calling into existence the new statute, which presumably complicates the grammatical analysis of the passage. One might hypothesize that the initial promulgation of the statute had to conform to a narrowly defined set of grammatical parameters, while all subsequent references to the statute, as in the law codes, implicitly refer back to its original utterance.

²³ See now Civil's new edition in George 2011, 221–286.

shekels of silver. [Section 18] If that slave does not want to name the master, the person must bring him or her to the palace; the case will be the object of an investigation and the slave will be returned to the master. [Section 19] [But] if the person keeps that slave in his house, and if, subsequently, that slave is seized in his possession, that man will be put to death. [Section 20] If the slave flees from the house of the one who had seized him or her, that man will have to swear an oath to the slave's owner and will be acquitted.²⁴

Charpin then summarizes this series of entries as follows: "The general case ... is articulated in section 17. Section 18 stipulates the case of a slave who persists in his attitude, refusing to say to whom he belongs. Section 19 introduces another variant: the person who has taken in the fugitive slave keeps him for himself. Last case: the fugitive slave repeats the offense with the person who captured him."²⁵ While it is, one might say, theoretically possible that several distinct rescripts (all now lost, if they ever existed) led to the gradual accumulation of these closely related statutes, it is much more likely that these distinct provisions grew up around the question in section 17 through a process of scholarly discussion and elaboration by the leading jurists of the time. How precisely this type of academic elaboration was formally introduced into legal compendia remains, however, entirely unclear.

We see these same three processes (inheritance, promulgation and scholastic elaboration) in a number of different 'scientific' discourses in ancient Mesopotamia; chiefly, however, in the divinatory compendia. Of these three processes, the nature of promulgation may have been quite different for different compendia, depending on the status of the materials as official, semi-official or professional: a professional handbook, for instance, could presumably be authorized by the leading members of a profession without explicit authorization by the crown, although we might also expect that the status of these individuals as leading members of the profession was ratified by their role as, say, personal physician to the king. For our purposes here, however, the most important result of the recognition of these three distinct processes is that it makes the question of empiricism in these materials very nearly impenetrable. If there is no way of distinguishing between a statute that is promulgated in response to an imperial rescript and one that arises as a scholarly elaboration, how can we judge whether a concrete historical case lies in the background of a given statute? Rather than simply abandoning the question of empiricism in its entirety, I would like to turn at this point to the Babylonian therapeutic compendia. I would like to suggest that the literary structure, or perhaps better the narratological structure, of the therapeutic materials will allow us to distinguish between depersonalized case histories that are rooted in a given historically contingent situation and paradigmatic elaborations of the inherited nosology of the Babylonian medical tradition.

²⁴ Charpin 2010, 75; Roth 1997, 84–85.

²⁵ Charpin 2010, 75–76.

4 Depersonalized case histories in SUALU

The Babylonian therapeutic corpus is organized into a single series of subcorpora, each of which consists of a handful of distinct tablets; each of these tablets typically include approximately 200 lines (at least in the “library” editions from Ashurbanipal’s library), so the larger subcorpora can easily run to more than 1000 lines of text. The structure of the therapeutic corpus is partially visible in incipits, catch-lines and subcorpus summaries that describe a particular tablet as the “third tablet of [the subcorpus] SUALU”, but the only way of perceiving the broader outlines of the therapeutic materials is to look at a catalogue of incipits known as the Assur Therapeutic Catalogue.²⁶ While the catalogue as a whole is quite fragmentary (a new edition is currently being prepared by the BabMed team), to the degree that it can be reconstructed it conforms to the rubrics of the therapeutics materials, most of which stem from Ashurbanipal’s library in Nineveh.

In order to get some idea of how subcorpora are organized in the Babylonian therapeutic tradition, let’s have a quick look at two subcorpora (ATEMWEGE and SUALU) as they are described in the Assur Therapeutic Catalogue. The part of the catalogue that corresponds to ATEMWEGE and SUALU in the catalogue (YBC 7146 = Beckman and Foster no. 9b), obv. lines 8’–15’, can be reconstructed as follows:

Beckman and Foster no. 9b, obv. lines 8’–15’ (Translation)

ATEMWEGE ①②	8’	① ‘If a man has difficulty breathing’ ② ‘If a man’s chest is sick’
ATEMWEGE ③	9’	③ ‘If a man’s chest, epigastri]um and shoulders hurt’
ATEMWEGE ④⑤	10’	④ ‘If a man has a low fever and spasms of coughing’ ⑤ ‘If a man is ill with <i>suālu</i> disease’
ATEMWEGE ⑥	11’	⑥ ‘If a man is ill with <i>suālu</i> , mucus] or constrictions in his lungs’
	12’	[Total: six tablets, from ‘if a man has difficulty breathing’ to ‘if a man’s windpi]pe and lungs are afflicted with <i>šiqu</i> disease’ and ‘if a baby is ill with <i>suālu</i> ’
SUALU ①②	13’	① ‘If <i>suālu</i> disease turns into <i>kis libbi</i> dis]ease’ ② ‘If a man is sick to his stomach’
SUALU ③④⑤	14’	③ ‘If a man’s epigastrium hurts’ ④ ‘If a man has an acute fever’ ⑤ ‘If a man’s stomach is warm’
	15’	[Total: five tablets from ‘If <i>suālu</i> disease turns into <i>kis libbi</i> disease’ to ‘If wind seizes him’

The SUALU compendium is named after its incipit, which describes the respiratory illness *suālu* turning into an illness of the digestive tract, viz. *kis libbi* ‘constriction in the internal organs (*libbu*)’. But since the incipit actually describes *suālu* turning into another class of diseases, no materials associated with this respiratory disease actually occur in the SUALU compendia and, in fact, it is almost entirely concerned

²⁶ Beckman and Foster 1988.

with illnesses of digestive tract, fevers and jaundice. The subcorpus that precedes SUALU, namely ATEMWEGE, is concerned almost entirely with respiratory illness. The total following each subcorpus gives the number of tablets in the subcorpus (6 in ATEMWEGE, 5 in SUALU), and then lists the first and last sections of the entire subcorpus. Since the incipit of the first section of a subcorpus is invariably identical to the incipit of the first tablet of the subseries, this is often treated as the name of the subcorpus as a whole.

The research history surrounding these two subcorpora could not be more different, and actually a brief look at these two subcorpora tells us a great deal about the special difficulties we face in attempting to make sense of Babylonian therapeutic materials. Whereas SUALU was the first major subcorpus to be identified and studied as a unit, largely because three (now four) of its five tablets were preserved to a great degree,²⁷ ATEMWEGE remains fragmentary and almost entirely unedited. Moreover, it should be kept in mind that since the incipit of SUALU refers to the respiratory disease known as *suālu* changing to *kīs libbi*, a digestive disease, nearly all discussion of the disease itself occurs in ATEMWEGE rather than the subcorpus to which it gives its name. Since SUALU is one of the better preserved subcorpora within the therapeutic corpus (and I am also currently preparing a new edition of SUALU) I would like to use the SUALU materials as the primary group of material in attempting to identify depersonalized case histories within the therapeutic corpus.

Since we have no clear forerunners to the SUALU materials and no information on how the materials in the subcorpus came into being, we must depend entirely on the formal or narratological structure of the materials themselves. If we take as our point of departure the second column on the obverse of SUALU 2, the structure of this technical genre will hopefully become somewhat clearer. The first thirteen lines of SUALU 2, column 2, consist entirely of pharmacological descriptions; these are isolated therapeutic recipes that have no obvious connection with the materials that follow. Unfortunately the end of the preceding column is largely destroyed, so we cannot be sure what the function of these isolated prescriptions was. Then in line 14 we find a series of relatively simple diagnostic statements, culminating in what I would describe as a ‘depersonalized case history’ with four symptoms in line 38.

SUALU 2 (BAM 575), column ii, section headers 1–38 (Cadelli 2000, 129–132)

1–13 (isolated therapeutic prescriptions)

14 *diš-ma úh tuku.tuku ...* (recipe)

17 *diš na šà.meš-šú mú.mú it-te-né-bi-ṭu šà-šu ana pa-re-e e-ta-né-pa-āš ana ti-šú ...* (recipe)

19 *diš na ki.min ...* (recipe)

20 *diš na šà.meš-šú mú.mú it-te-né-bi-ṭu tumu ina šà-šú nigin-ur i-le-bu ...* (recipe)

22 *diš na šà.meš-šú mú.mú-hu it-te-né-bi-ṭu ...* (recipe)

²⁷ Küchler 1904.

- 24 diš na šà.meš-šú *it-te-nen-bi-tù* ... (recipe)
 26 diš na šà-šú *it-te-né-bi-tù* ... (recipe)
 28 diš-*ma* úh tuku.tuku *gan-ha* u₄.^rda kur^r... (recipe)
 31 diš na saġ šà-šú kúm ^ršà-šú mú^r.mú-hu ... (recipe)
 35 ^rdiš^r na šà.meš-šú *ma-gal nap-hu* ^rninda^r.meš kaš.meš *ina* ka-šú gur.gur-*ra* ... (recipe)
 38 diš na šà.meš-šú *nap-hu* ^ršub^r.šub.meš-šú ninda *u* kaš lá úh tuku-*ši ana* ti-šú ... (recipe)
- (14) If (a man) constantly has phlegm ...
 (17) If a man's innards are bloated, he continually has cramps and his stomach heaves constantly (but he does not vomit), in order to make him recover ...
 (19) If a man DITTO, ...
 (20) If a man's innards are bloated, he continually has cramps and gas churns around inside his belly, ...
 (22) If a man's innards are bloated and he continually has cramps, ...
 (24) If a man's innards continually suffer from cramps, ...
 (26) If a man's innards continually suffer from cramps, ...
 (28) If (a man) continually has phlegm, a spasm of coughing and *šēta kašid* fever, ...
 (31) If a man's epigastrium burns, his belly is continually bloated, ...
 (35) If a man's innards are extremely bloated (and) he vomits up bread and beer in his mouth,
 (38) If _{<symptom 1 a man's innards are bloated>}, _{<symptom 2 he is continually struck down>}, _{<symptom 3 he has no appetite for bread or beer>}, (and) _{<symptom 4 he has phlegm>}, in order to make him recover

First of all, it should be noted that the numerous, largely orthographic variants of the phrase diš na šà.meš-šú mú.mú 'if a man's innards are bloated' occur in lines 17, 20, 22 and 31. But then, after a series of relatively simple symptom descriptions, the entry in line 38 describes no less than *four* distinct symptoms. The remainder of the section then goes as follows:

- SUALU 2 (BAM 575), column ii, section headers 43–52 (Cadelli 2000, 132–133)
 43 diš na šà.meš-šú *nap-hu gu-ha* u úh tuku.meš-šú ninda *u* kaš lá *ana* ti-šú ... (recipe)
 45 diš na šà.meš-šú *nap-hu* saġ šà-šú *ru-pu-ul-ta* tuku.meš-šú *ana* ti-šú ... (recipe)
 48 diš na šà.meš-šú *nap-hu* ... (recipe)
(new thematic section)
 50 diš na šà-šú *e-me-er* ... (recipe)
 51 diš ki.min ... (recipe)
 52 diš ki.min ... (recipe)

In the rest of the column, therefore, the last few entries in the diš na šà.meš-šú *nap-hu* 'if a man's innards are bloated' section each end with the same distinctive phrase; the last entry in the section containing the distinctive phrase (viz. diš na šà.meš-šú *nap-hu*) alone. Then a new thematic section begins with an equally simple, but distinct condition: diš na šà-šú *e-me-er* 'if a man's belly is warm'.

It should be clear from the foregoing example that the 'depersonalized case histories' that we are looking at in this paper can and should be defined not only in terms of the raw number of symptoms, but also in terms of their position within the overall structure of a given therapeutic subcorpus and even within a given subsection within the subcorpus. In the subsection running from line 14 through

line 48, for example, there is only one ‘depersonalized case history’ in line 38 and the rest of the therapeutic descriptions are much simpler and buttress the more complex ‘case history’ in line 38. In fact, nearly all of the individual symptoms listed before and after line 38 are included among the four symptoms in line 38 or are somehow semantically related to the content of this single entry. The first entry in the new section in line 50, however, has little in common with the preceding section: the syllabically written word *e-me-er* in line 50 could be equated with the corresponding logogram *kúm* in line 31, but in line 31 it is his epigastrium (*sag šà-šú*) that is warm rather than his belly (*šà-šú*). Moreover, if the editor had meant for a link between line 31 in this subsection and line 51 at the beginning of the next thematic subsection, one could reasonably expect that the entry in line 31 would have moved to the end of the subsection and that the same orthography for *emer* “it is warm” might have been used in both lines.

In line with the contrast between imperial rescript and scholarly elaboration as two methods of innovation in our earlier discussion of legal innovations, I would like to suggest that some additional criteria may be useful in evaluating whether particular entries represent depersonalized case histories or not. First of all we should pay attention to the paradigmatic character of a given entry. In the example of scholarly elaboration within the legal sphere that we look at earlier (LH §§17–20), each variation on the general theme in section 17 (“If someone has captured a fleeing slave, ... the master of the slave will have to give the person 2 shekels of silver”) added, as it were, a single additional contextual factor. In section 18, the slave refused to name his or her master, in section 19 the person who caught the slave does not turn him or her in, and in section 20 the slave escapes from his new captor as well. In contrast to this legal example, the depersonalized case history in question here exhibits thematic links to the surrounding, relatively simple collocations of symptoms (*šà.meš-šú nap-hu* also occurs in lines 35, 43, 45 and 48, *ninda u kaš lá* in line 43, and *úh tuku-ší* in lines 14, 28, and 43), but the paradigmatic character of these entries is weak at best. Instead of hypothesizing that the collocation of four symptoms in line 38 is a rather disorderly example of scholarly elaboration or invention, the more parsimonious explanation is that the symptoms mentioned in line 38 belonged to a depersonalized case history and the simpler elements that surround line 38 gravitated to it as a result of these thematic links.

5 Paradigmatic abbreviations

One piece of evidence in favor of my interpretation of line 38 as non-paradigmatic is that it does not participate in either of the two forms of paradigmatic abbreviation that are used to represent the repetition of symptoms in multiple entries in SUALU. The most common way in which symptoms are abbreviated in SUALU is to replace the entire set of symptoms with the DITTO marker *KI.MIN*, allowing for variation in the treatment that is recommended for the given symptoms. This form

of abbreviation occurs in at least a dozen different passages in SUALU (single occurrences of KI.MIN have been excluded).

SUALU I	i 8, 9, 10	(treatments for <i>kīs libbi</i>)
	i 13, 14, 17	(treatments for <i>kīs libbi</i>)
	i 31, 32, 33, 35, 36	(treatments for <i>kīs libbi</i> + other ailments)
	i 43, 44, 45, 46, 47, 48, 49	(treatments for <i>libbu kasi</i>)
SUALU II	i 7, 9, 10, 11	(treatments for <i>libbu maruṣ</i>)
	i 28, 31, 34	(treatments for <i>libbu maruṣ</i>)
	i 41, 44, 47	(treatments for <i>libbu maruṣ</i>)
	ii 51, 52, 53	(treatments for <i>libbu emer</i>)
	iv 17, 22, 25, 27, 30	(treatments for the symptoms in iv 11)
	iv 45, 46	(treatments for the symptoms in iv 43)
SUALU III	i 33, 34, 35, 36, 37	(treatments for the symptoms in i 27–30)
	ii 67a, 67b, 68a, 68b, 69a, 69b, 70a, 70b,	(treatments for gall bladder disease)
	iii 1a, 1b, 2, 3	
	iv 14, 15	(treatments for jaundiced eyes)
	iv 35, 38, 39, 40 (NA MIN)	(treatments for <i>ahhāzu</i> -jaundice)
SUALU IV	i 3', 4'	(symptoms unclear)
	i 17', 19'	(treatments for depression)
SUALU V	i 48, 49	(treatments for heat in the belly)

These different treatments of a single group of symptoms represent the *raison d'être* of the therapeutic corpus, so it is little wonder that they dominate the discursive structure of SUALU. It is noteworthy that these groups of divergent treatments follow (and thus reiterate) entries that include a single symptom. In many of these instances, the symptom can be matched up with the name of a known disease such as *kīs libbi* or *ahhāzu*.

The other form of paradigmatic abbreviation that we find in SUALU occurs in a single passage from SUALU IV, and interestingly enough this is the only passage for which we have substantial evidence of Middle Babylonian or Middle Assyrian manuscripts. In contrast to the usual form of paradigmatic abbreviation in the therapeutic texts, where the entire set of symptoms must be replaced as a unit, at least some manuscripts of SUALU IV allow for the replacement of just the lead symptom, while the remaining symptoms are written out. This peculiar form of paradigmatic abbreviation only occurs in the Middle Assyrian manuscript BAM 66 and in the first-millennium BCE sources; our lone Middle Babylonian manuscript, viz. BAM 174, does not make use of an abbreviation in agreement with the practice for this type of text elsewhere in the therapeutic corpus. A nice example of this

variation can be seen in lines 6–10 of SUALU IV (see Johnson 2014 for additional background).

SUALU IV i 3, 5, 7 and 9 (rulings and intervening lines omitted, see Johnson 2014 for background; manuscripts A and B are first-millennium manuscripts, while manuscript C is Middle Assyrian and manuscript D Middle Babylonian)

- 3 A_{obv₃} diš na min kúm 'tuku' [.....]
 B_{i₃} [..... ina] 'i.giš²⁷ šés.meš-su
 úan.ki.nu.ti
 C_{rev₆} diš na min kúm tuku *ana* ti.bi úap-rù-šá [.....]
 D_{21'} diš na u₄.da kur-id kúm tuku-ši *ana* ti-šú úap-ru-šá ina i+giš šés úan.ki.nu.[ti]
- 5 A_{obv₅} diš na min ninda u kaš nu *i-le-em ana* 'ti'-[šú]
 B₁₅ [.....] x i.giš šim^{sim}gúr.gúr šés-su
 C_{rev_{5a'}} diš na min ninda u kaš nu *i-le-em ana* ti.bi i 'šim' [.....]
 D_{23'} diš na u₄.da kur-id ninda u kaš *la i-ma-har ana* 'ti'-[šú i].giš šim^{sim}gúr.gúr šés-su
- 7 A_{obv₇} diš na min *ku-šú hur-ba-šú-^ru'* [.....]
 B₁₇ [.....]-^rsu' *ana* ti-šú i.giš úap-rù-šá šés-su
 C_{rev_{10'}} diš na min *ku-šú hur-ba-šu* šub.šub-su *ana* ti.bi i.^rgiš' [...]
- 9 A₉₋₁₀ diš na min kúm 'tuku' [.....]/šés-su
 B₁₉ [..... *ana*] 'ti'-šú i.giš šim^{sim}gúr.gúr i.giš šim^{sim}i šés-[x]
 C_{rev_{12'}} diš na min kúm tuku *ha-tu* šub.šub-su *ana* ti.bi i šim^{sim}gúr.gúr i [.....]

As the underlined phrases in lines 3 and 5 of manuscript D show, the section consists of a small collection of cases organized around u₄.da kur-id (= Akk. *šēta kaš-id*), but in the Middle Babylonian sources the key phrase is repeated in each of the entries, while in the Middle Assyrian manuscript C and the first-millennium manuscripts A and B, this first symptom is replaced by MIN 'DITTO'. This is a rather unusual procedure and it demonstrates that distinct scribal practices existed in different times and places.

In fact, however, the repetition of lead entries in groups of complex cases such as these is the norm in SUALU, as we can see in the followed collection of depersonalized case histories, drawn from the next column, viz. column iii, in SUALU II.

SUALU II iii lines 49, 51–52, 55–56

- 49 diš na kaš.sag nag-ma suhuš.meš-šú *pa-al-qa di-ig-la ma-a-ṭi* (three symptoms)
ana ti-šú numun úsikil numun úaš numun úiš^{iš}'bī-^r[ni] ...
 If a man drinks high quality beer, and subsequently his lower extremities become unsteady (?) and his eyesight is weak, in order to make him recover, seed of the 'pure' plant, seed of the 'lone' plant (*ēdu*), tamarisk ...
- 51 diš na kaš nag-ma sag.du-su dab.dab-su ka.meš-šú *im-ta-na-áš-ši ina* du₁.du₁-šú *ú-pa-áš-šaṭ*
 52 *ṭè-en-šú la ša-bit* lú.bi iḡi^{ll}-šú gub-za (five symptoms) *ana* ti-šú úiḡi-lim úiḡi.niš útara-muš
 úhar.har ...
 If a man drinks beer, and subsequently he has a constant headache, he constantly forgets words, he interrupts himself while he is speaking and cannot make a decision, that man (has) 'standing eyes', in order to make him recover, *imhur-lim, imhur-ešrā, tarmuš, hašú* ...

55 diš na gaba-su gig-ma gim ši-né-e-ti sahar tuku.tuku-ši ina da-ba-bi-šú ik-ka-šú ik-ta-nir-ru
 56 ù zé ip-te-nar-ru na.bi bi-šit šà gig (four symptoms) ana ti-šú ^úeme.ur.gi, ina kaš nu pa-tan nag-šú ...

If a man's chest hurts, and subsequently when he urinates, it contains sediment, he is irritable when he speaks, and he keeps vomiting up bile, that man suffers from *bišit libbi* disease, in order to make him recover, have him drink 'dog-tongue'-plant in beer on an empty stomach

...

Here we see three examples of depersonalized case histories written in sequence, each of which is followed by a specific treatment. The first two share the drinking of beer as their first element, while the third veers off in another direction, presumably brought into relation with each other through the co-occurrence of the phrase *ina dabābišu* “while he is speaking”, in two purely orthographic variants: *ina du₁₁.du₁₁-šú* in line 51 and *ina da-ba-bi-šú* in line 55. Note in particular that two of the three cases are classified as exemplars of named diseases, viz. ‘eyes standing still’ and *bišit libbi* diseases. In other words, the traditional Babylonian nosology would not normally have juxtaposed these three case histories, yet the editor of this compendium chooses to do so.

Part of the reason for their juxtaposition (beyond the internal similarities mentioned above), may be that the editor sensed commonalities of symptomatology or treatment and wished to make the reader aware of these possibilities. This interpretation of this dossier of case histories seems to be further strengthened by the fact that immediately after the third of the three case histories we find three additional therapeutic procedures that omit symptomatology entirely (SUALU II iii 59–64), not even including a paradigmatic abbreviation such as *šumma* KI.MIN. Elsewhere in the SUALU subcorpus, individual cases are quite often followed by additional therapeutic alternatives (see the list above, but also note that no less than 11 alternative treatments occur in the first *column* of SUALU II), but crucially in all of these passages the additional therapies are clearly marked as such by *šumma* KI.MIN, literally ‘if DITTO’. The fact that *šumma* KI.MIN is omitted from the symptomatology of the three therapies in SUALU II iii 59–64 may be an indication that they were meant as a set of possible treatments for the ‘family’ of conditions outlined in the preceding dossier, but only with the identification of similar textual configurations can such a hypothesis be properly evaluated. Even as textual structures such as paradigmatic abbreviations or dossiers of depersonalized case histories map out the broader topography of the Babylonian technical compendia, they also provide the primary context for evaluating the use of discursive elements such as *ana ti-šú*, to which we turn in the next section.

history, the text reports that *uzabbal-ma imât* “he will last a long time and then he will die”. Here *uzabbal-ma imât* fills the prognosis slot and, since it is negative, the treatment component is simply omitted. In a somewhat older generic form that may possibly occur in *Diagnostic Handbook* XXXI but certainly occurs in SUALU IV (see Johnson 2014 for background), Finkel identified a more complex form of prognosis that listed the number of days the patient would be sick, followed by the statement *ana gig-su nu gid.da* “to avoid prolonging his sickness”. This more elaborate statement of prognosis occurs in the same slot as *ana ti-šú*, but represents an older moment in the history of the technical ‘speech genre’ under discussion here.

Although in principle any one of the four elements in this schema could be omitted if there were enough clues in the format of the overall text to allow for the reconstruction of the entire entry, one of my central aims in this paper is to suggest that the omission of particular elements from this generic form were often used to classify epistemological distinctions within the therapeutic corpus. To return briefly to some of the foregoing examples, if the symptom in a series of entries is reduced to little more than the DITTO mark, disease name and prognosis are omitted, and the therapeutic regime follows immediately after the DITTO, then obviously we are facing a situation in which the nosological entity is well defined and the text is presenting various options for the treatment of a usual suspect. On the other hand, a series of entries in which the symptoms are described in detail and are similar to the symptoms in neighboring entries, but no disease names (or a wide variety of disease names) are invoked, might suggest a situation in which the nosological classification of the disease remains unclear, but a treatment is advanced on the basis of commonalities among the symptoms of particular case histories. Within this admittedly indirect system for coding epistemological contexts, *ana ti-šú* plays an interesting role in that it frequently occurs in those entries that I would like to classify as depersonalized case histories.

In the SUALU material as currently reconstructed (Cadelli’s preliminary edition in combination with the new material for SUALU IV reported in Johnson 2014), there are 34 occurrences of *ana ti-šú*. Ten of these occurrences are in what we might call ‘full form’ therapeutic entries in which all four elements of the above mentioned schema are present (SUALU I i 27, ii 18, ii 29; SUALU II i 21, iii 44, iii 51, iii 55, iv 34; SUALU III i 1, i 27, i 38). In nearly all of these entries three or more symptoms are mentioned and in a few of these cases the symptomatology grows to astounding proportions: in SUALU I i 26–27 eight separate elements are included in the symptom section and in SUALU III i 27–30 at least a dozen distinct symptoms are enumerated. In SUALU II, the biggest set of symptomatology is to be found in the middle of the first column on the reverse (iii 30–32) and consists of only six or seven symptoms, depending on how it is reconstructed, and in SUALU V the biggest set occurs in the last column on the reverse (iv 33–35) and consists of five symptoms at most. These extra large sets of symptoms always seem to exhibit all four elements of the schema and thus necessarily include an *ana ti-šú* phrase. It is

presumably no accident that these highly involved full form cases histories usually occur in the center of a column, often preceded by a battery of pharmacological and incantatory alternatives that are appended to a simple, single-entry symptom description that is then repeated with KI.MIN in a paradigmatic abbreviation. Grosso modo we should probably see these contrasts between pharmacological alternatives and a single elaborate case history as a kind of theoretical introduction to a given subcorpora, laying out a range of possible treatments as well as a single case in which the possible set of symptoms is maximized.

In the middle range, however, we find a much larger group of entries in which three or four symptoms are mentioned, the name of a disease may or may not be present, but *ana ti-šú* is almost always there. Interestingly enough, these middle range case histories – in my view the best candidates for an analysis involving depersonalization rather than scholarly elaboration – tend to occur in clusters and, when disease names are introduced, the case histories within a cluster either do not belong to the same nosological category, or if they do belong to the same category, they usually have no symptoms in common. The most important examples of this type of clustering occur in SUALU II ii 17–21 (two cases, although only the first has *ana ti-šú*, no disease names), SUALU II ii 38–47 (three cases, all with *ana ti-šú*, no disease names), SUALU II iii 49–58 (three cases, all with *ana ti-šú*, one without disease name and the other two with different disease names), SUALU II iv 37–53 (three cases, all with *ana ti-šú*, no disease names), SUALU III i 46–52 (two cases, both with *ana ti-šú*, both also dealing with gall bladder disease, but no symptoms in common), SUALU III ii 18–22 (two cases, both with *ana ti-šú*, both dealing with forms of *pāšittu* disease, but again no symptoms in common), SUALU III iii 4–6 (two cases dealing with *amurriqānu*-jaundice, both with a negative prognosis), and SUALU IV i 3–10 (four cases, all with *ana ti-šú*, no disease names).²⁹ These eight clusters of depersonalized case histories are all clearly grappling with the problem of disease identification, not along the lines of the *Diagnostic Handbook* and its concern for ultimate causes, but rather in straightforward therapeutic terms. In my view, these dossiers made up of similar case histories represent a rare moment of empirical experimentation vis-à-vis disease classification, but within a distinctly therapeutic milieu.

The last use of the phrase *ana ti-šú* within the SUALU subcorpus is interesting in that it represents a borderline phenomenon, carefully distinguishing the problem of disease classification and the postulation of pharmacological alternatives. There are at least four places in the SUALU subcorpus where *ana ti-šú* qualifies a single symptom entry (SUALU I 43 and i 49, SUALU II iii 18, iii 25, and iv 34) and one might reasonably ask what differentiates these single symptom entries from

²⁹ SUALU II ii 57–65 shared all of the same formal features of the clusters of case histories mentioned here (three juxtaposed cases, no diseases named), but these entries do not include *ana ti-šú*, so they have not been included in the list.

the type of paradigmatic abbreviations involving KI.MIN. As mentioned earlier, paradigmatic abbreviations typically begin with a single symptom entry but then continue on with additional entries in which the symptomatology is reduced to *šumma* KI.MIN ‘if DITTO’ or eliminated altogether. Needless to say, *ana ti-šú* never occurs in this standard form of paradigmatic abbreviation. It is fairly clear that single symptom entries that include *ana ti-šú* often perform discursive functions within the overall structure of an entire text, and in nearly all of these passages the single symptom *ana ti-šú* entry marks a shift from one family of symptoms or diseases to another. In SUALU II iv 34, for example, the symptom of spitting up blood is associated with a disease known as *tašnīqu*, and this entry follows more than 30 lines of therapeutic alternatives for a type of fever known as *šēta kašid*. Spitting up blood is also a symptom of *šēta kašid*, one among many others, and this provides the link between the two subsections, but the single symptom *ana ti-šú* entry indicates that a new ‘topic’ is at hand and in fact the rest of the column consists of depersonalized case histories for digestive illnesses that do not involve fever. Earlier in SUALU II, the single symptom *ana ti-šú* entries in iii 18 and iii 25 act in very much the same way, setting up a new nosological topic that will be discussed in the following lines: the first part of column iii deals with digestive problems, in particular the inability to consume bread and beer, while SUALU II iii 18 introduces a small subsection that deals with a patient whose belly is full of *haḥḥu* (*šà-šú ḥa-aḥ-ḥa diri*) and in iii 25 the topic shifts yet again to cases involving “wind roiling about in the belly” (*tumu ina šà-šú nigin-hur*).

Obviously these different uses of the phrase *ana ti-šú* will have to be further investigated in other therapeutic subcorpora, but its distribution within the SUALU materials already suggests that we may be able to use it as a diagnostic for distinguishing, say, subsections concerned with possible therapeutic alternatives from collections of depersonalized case histories that were meant to delineate common symptomatology relevant to treatment. As a discursive phenomenon, however, we should also keep in mind that the distribution of *ana ti-šú* may not have reached the level of self-conscious awareness. In other words, it may be operating under the categorical radar, below the level of metapragmatic awareness. If so, and if similar patterns can be identified in other therapeutic corpora, it may eventually offer a means of differentiating the purely formal structure of the therapeutic materials as text-artifact and the pedagogical contexts in which these materials presumably had their *Sitz im Leben*.

7 The infrastructural role of the Babylonian therapeutic compendia

In lieu of a conclusion, I would like to return to one of the major themes outlined in the *Introduction* to this volume, viz. the notion of an *infrastructural compendium*,

and in particular the role that this type of compendium plays in defining a ‘common ground’ of shared exempla and curriculum for a technical discipline. Even beyond the specific legal model for depersonalization that we looked at earlier, it can be argued that some form of depersonalization is also favored by the pragmatic goals of this kind of compendium.

As defined in the *Introduction* to this volume, an infrastructural compendium is a written text that is meant to be used as a skeleton for organizing a series of non-written discussions in a pedagogical context. The reason for focusing on the notion of infrastructure in the *Introduction* was to emphasize that the written skeleton in such a context was only meant to organize a set of possible themes and the sequence in which they ought to be tackled, while leaving the specific interpretations of specific points open to disputation. Such a text is *infrastructural* in that it merely forms a medium or common ground for the elaboration of distinct scholarly points of view. While nearly all technical compendia in early Mesopotamian contexts are infrastructural in precisely this sense, much later compendia such as the Babylonian Talmud or the Zand are *post-infrastructural* in the sense that they seek to document within the same written text one or more points of view with respect to the skeleton around which the text as a whole is organized, viz. the Mishnah and the Avesta respectively. Put somewhat differently, a post-infrastructural text moves the oral disputations that surrounded an infrastructural text into the written medium. Since this typology of written compendia is dealt with at greater length in the *Introduction*, I will not repeat that discussion here. Instead, I would like to suggest that depersonalization, as a general strategy for the processing of a case history, fits exceedingly well into an infrastructural model precisely because an infrastructural compendium only succeeds to the degree that it is able to erase the history of its own composition.

If the chief goal of an infrastructural compendium is to establish a common ground that can no longer be disputed within a given professional or subcultural group, with the distinctive points of view only encoded in an oral medium, then clearly this type of interaction between the written and the oral can only take place within a well-defined and long-lasting institutional framework. If the case histories incorporated into an infrastructural compendium were not depersonalized, if they provided us with short biographies of the patients, obviously the ability of such a compendium to persist and retain its authority within a particular institution could easily be compromised. What if a patient were the former king of Mari and, later on, Mari’s reputation declines? This could easily lead to a devaluation of particular case histories and undermine the a- or transhistorical character of the infrastructural compendium. The occasional references to Hammurapi in Babylonian medicine are indeed the exception that proves the rule, for no other historical personage is mentioned in the entire corpus. Strangely enough, once we have shifted our perspective from the largely non-institutional authorial model of Graeco-Roman science to the heavily institutional model behind the idea of an infrastructural com-

pendium, the absence of biographical information from the depersonalized case histories in the Babylonian therapeutic texts no longer looks like a defect, but rather represents a clear effort to exclude extraneous information so as to focus the scholastic debates of the academies on the essential questions of the therapeutic discipline.

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