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# ‘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,<sup>1</sup> this topic has not played an important role in the study of Mesopotamian medicine.<sup>2</sup> 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.<sup>3</sup> 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

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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.<sup>4</sup> 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.

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<sup>4</sup> 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.<sup>5</sup> 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’.<sup>6</sup> 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’.<sup>7</sup> 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.<sup>8</sup> 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.<sup>9</sup> The existence of an empirical

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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-dug<sub>4</sub>/di*, which is also attested in Sumerian texts from the 3<sup>rd</sup> and early 2<sup>nd</sup> 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-dug<sub>4</sub>/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-dug<sub>4</sub>* 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-dug<sub>4</sub>/di* range between ‘to verify; to control; to examine; to test’ and ‘to estimate’ (Attinger 1993, 575–576). Thus, *kāb-dug<sub>4</sub>* 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-dug<sub>4</sub>*, 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.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup> 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.<sup>13</sup> 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

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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-dug<sub>4</sub>*) 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 7<sup>th</sup> 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).<sup>14</sup>

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*.<sup>15</sup> 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.<sup>16</sup> The issue can be compared with similar ‘tests’ in Egyptian papyri and Greek medical texts, especially in the Hippocratic corpus.<sup>17</sup> Thus, it might

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**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<sup>he-pi</sup>-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.<sup>18</sup> The signs of pregnancy are established predominantly by observing the woman's physical appearance and by testing her reaction to certain substances.<sup>19</sup> 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),<sup>20</sup> 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;<sup>21</sup> 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*.<sup>22</sup>

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 *peš<sub>4</sub>* 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.<sup>23</sup> 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

<sup>22</sup> 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: *munu<sup>s</sup>šà.zu lá-šú mál-tak-ta-šú / ki-i peš<sub>4</sub> u ki-i nu peš<sub>4</sub>* “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]u<sup>2</sup>-a-tú sum-su u [mal-t]ak-tú ta-lat-tak “you give her the (aforementioned suppository) [...] and you perform the [te]st.”

<sup>23</sup> 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.<sup>24</sup> 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.<sup>25</sup> 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.<sup>26</sup> 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.<sup>27</sup> 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.<sup>28</sup>

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**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:<sup>29</sup>

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.<sup>30</sup> 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,

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

<sup>30</sup> 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) *sig<sub>5</sub>-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,<sup>31</sup> 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 šibamma šamma lultuk / ʿšummaʿ šibu 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. If<sup>?</sup> the old man becomes young (again), I will eat (some myself) and go back to how I was in my youth!”<sup>32</sup>

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.<sup>33</sup> 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.<sup>34</sup> 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,<sup>35</sup> 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.<sup>36</sup>

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-

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

<sup>33</sup> 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.

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

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

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

ing”, i.e. a scientific methodology.<sup>37</sup> 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.<sup>38</sup>

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.<sup>39</sup> 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.<sup>40</sup> 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.<sup>41</sup>

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

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<sup>37</sup> Stannard 1982, 70.

<sup>38</sup> See also Totelin 2011, 84–86.

<sup>39</sup> 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).

<sup>40</sup> 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.

<sup>41</sup> 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”.<sup>42</sup> 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”.<sup>43</sup> 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.<sup>44</sup> 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

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<sup>42</sup> 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).

<sup>43</sup> Hsu 2010, 36.

<sup>44</sup> Hsu 2010, 31–36.

given medical tablet with the efficacy label ‘tried/tested’ attached to them.<sup>45</sup> 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’).<sup>46</sup> Furthermore, the idiomatic phrase *ana/ina qāti/i 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/i šūšû* is not entirely certain.<sup>47</sup>

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

<sup>45</sup> 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.

<sup>46</sup> 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).

<sup>47</sup> 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.<sup>48</sup> 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:<sup>49</sup>

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[g<sub>5</sub> súd ina] i šés-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*.<sup>50</sup> Scholars also used this phrase in letters to convey their expert medical knowledge to the Assyrian king.<sup>51</sup>

<sup>48</sup> 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.

<sup>49</sup> 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 uš<sub>11</sub>.búr.ru.da sig<sub>5</sub>*), “it is good for all ailments” (l. 61’ *ana gig.meš dù<sup>1</sup>.a.bi sig*). See similarly KADP no. 33, obv. 7: *ana šim-ma-te zi<sup>1</sup> 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 gir.ṛtab<sup>1</sup> 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’.

<sup>50</sup> *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 ši saḫunu mu-ša ana kiširte mur<sub>5</sub>.meš dù.a.bi sig<sub>5</sub>* “This mixture (*billatu*) is called *saḫunu* (a potion); it is good for all congestion(s) of the lungs.” (col. ii 14).

<sup>51</sup> 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 uš<sub>11</sub>.búr.ṛda<sup>1</sup>.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’ (‘uš<sub>11</sub>.búr<sup>1</sup>.ru.da.meš sig<sub>5</sub>.meš) are being performed for the patient.

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

## 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 magic<sup>53</sup> to rituals against field pests.<sup>54</sup> 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.<sup>55</sup>

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.<sup>56</sup>

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

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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.buru<sub>5</sub>.dib.bé.da* “To avert the Locust-Tooth” contains a summary section describing the text as “reliable rituals and readings (*nēpešē 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 tu<sub>15</sub> 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:

na<sup>4</sup>gug šá múd latiktu

‘tested’ carnelian, (the color) of blood<sup>57</sup>

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.<sup>58</sup> 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,<sup>59</sup> fumigations,<sup>60</sup> “leather pouches” (filled with drugs)<sup>61</sup> and bandages.<sup>62</sup>

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

<sup>58</sup> 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).

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

<sup>60</sup> *qūtāru latku* (e.g. AO. 6774 rev. v 16: *qu<sub>5</sub>-tar<sub>5</sub> ša geštu<sup>II</sup> lat-ku* “a tried fumigation for the ears”).

<sup>61</sup> *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.

<sup>62</sup> *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 2<sup>nd</sup> millennium BCE. Yet, although all the ‘tested’ remedies discussed here are entirely from tablets dating to the 1<sup>st</sup> 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.<sup>63</sup>

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.<sup>64</sup> Marten Stol (1991–1992, 59–60)

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<sup>63</sup> 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”.

<sup>64</sup> 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,<sup>65</sup> nor do we find anecdotes, which could reveal details about a trial.<sup>66</sup> 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

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<sup>65</sup> 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).

<sup>66</sup> 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.<sup>67</sup> 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.”<sup>68</sup> 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 hul-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’-tu<sub>4</sub> šá ana šu šu-šu-ú / [gab]a.ri <sup>giš</sup>le-u<sub>5</sub>-um / ša <sup>m</sup>nu-úr-<sup>d</sup>amar.utu um.me.<sup>r</sup>a<sup>’</sup> ká.dingir.<sup>r</sup>ak<sup>i</sup>’.

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-tu<sub>4</sub> gaba.ri eri-du<sub>10</sub> šá tup-pi* [.....] x x

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

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.<sup>70</sup> 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 šabāt epēši ḫantiš nasha/issuha*).<sup>71</sup> 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” (*ummānu*), 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,

<sup>69</sup> Cf. the partial duplicate line in STT 58 “obv.” 1.

<sup>70</sup> 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.

<sup>71</sup> 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 <sup>72</sup>	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 <sup>73</sup>	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 <sup>74</sup>	Recipe collection	Various	2	2	intermixed
STT 95+295 7–12 <sup>75</sup>	Collection	Illnesses caused by divine wrath	2	1	intermixed

<sup>72</sup> See Worthington 2006, 18–48; Worthington 2007, 45–46.

<sup>73</sup> See Abusch & Schwemer 2011, 61, esp. l. 8–9.

<sup>74</sup> Heeßel & Al-Rawi 2003, 221–239.

<sup>75</sup> 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<sup>m</sup> 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<sup>m</sup> Ki-šir-<sup>d</sup>muati a ša<sup>d</sup> utu-[ibni]</i> <i>ħa-an-iš 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<sup>r</sup> x x</i> "A total of eighteen (drugs for) <i>apīslat</i> -disease, 'tried', ..."	<i>ana ša-bat e-pe-ši<sup>m</sup> 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-<sup>r</sup>qa<sup>r</sup></i> [n] / <i>da-mi-iq lat-ku</i> "This <sup>n</sup> 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<sup>m</sup> Ki-šir-Aš-šur maš.maš é</i> [Aš-šur] <i>ħa-an-iš 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 3<sup>rd</sup> 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<sup>II</sup> 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:<sup>76</sup>

BE 8, No. 133:

9 *[a]n-ni-tú ša pî um.me.a*

10 *la-tik-tu<sub>4</sub> ana ka šá-ṭir*

11 *gíd.da<sup>md</sup> 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)

<sup>76</sup> 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*<sub>4</sub>

Seventeen tried drugs for ‘Seizing-of-the-Mouth’ which the seven experts prescribed (lit. spoke) in their assembly<sup>77</sup>

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.<sup>78</sup> 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.”<sup>79</sup> 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” (*maššītu*), of which one recipe is described as *bulṭu latku* (l. 8). The recurrence of this phrase in the colophon possibly indicates that all four recipes were regarded as ‘tried’:

<sup>77</sup> The reference to an assembly of *ummānu*-scholars discussing medical treatments points to oral discourse and exchange among scholars. For other references to assemblies of *ummānu*, 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 (*apkallū*). For interconnections between the *apkallū* and the *ummānū* see Lenzi 2008a, 106–122, esp. 113 discussing *Erra* I 162. For bodies of *ummānu*-scholars serving Assyrian and Babylonian kings see Lenzi 2008a, 68–103 with further literature.

<sup>78</sup> 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.

<sup>79</sup> Leichty 1988, 263–264, ll. 6–10: *šá* ka <sup>m</sup>*Šu-la-a a-šú šá* <sup>md</sup>*ag-mu-sig<sub>5</sub>-iq a šá* <sup>mÉ</sup>*gi-bi um-ma šá* <sup>r</sup>*dúr-šú* *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<sup>II</sup> um.me.a*  
 25' *dub <sup>m</sup>Ki-šir-<sup>d</sup>Aš-šur maš.maš é Aš-šur*  
 26' *dumu <sup>md</sup>muati-be-sun maš.maš é Aš-šur*  
 27' *dumu <sup>m</sup>Ba-ba<sub>6</sub>-<sup>r</sup>mu<sup>1</sup>-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).<sup>80</sup> 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.<sup>81</sup> It is important to note that these formulae occur together with efficacy phrases qualifying individual recipes as well as groups of therapeutic procedures.<sup>82</sup> 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 3<sup>rd</sup> 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).<sup>83</sup> 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-ṭi né-[pe-ši šá é <sup>d</sup>]me.me né-pe-ši lat-ku-ti am-ru-ti ba-ru-ti šá ana šu<sup>II</sup> šu-[šu-u]*

90 *dù-uš-ma i-šal-[li]-mu ni-šir-ti maš.maš-ti šeš-ma mam-ma nu du<sub>g</sub>*

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)!<sup>84</sup>

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:<sup>85</sup>

*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*

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

<sup>84</sup> 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 šá <sup>gi</sup>zu šá *bul-ṭi ša é <sup>d</sup>me.me*).

<sup>85</sup> 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*).<sup>86</sup> 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).<sup>87</sup> 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.<sup>88</sup> 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.<sup>89</sup> 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.<sup>90</sup>

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,<sup>91</sup> 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.”<sup>92</sup> 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.<sup>93</sup>

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**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<sup>ki</sup> u *la dumu bar-ziḫ*<sup>ki</sup> u *la dumu iḫ-zu*<sup>l</sup> šu-ḫu-zu níg.gig <sup>d</sup>ag u <sup>d</sup>nidaba / [*ana*] *la dumu tin.tir*<sup>ki</sup> ù *la dumu bar-ziḫ*<sup>ki</sup> u *la dumu 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.<sup>94</sup> 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-2<sup>nd</sup> 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 1<sup>st</sup> 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 1<sup>st</sup> millennium BCE.<sup>95</sup> 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.<sup>96</sup> 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

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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.

<sup>94</sup> 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).

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

<sup>96</sup> SpTU 2, 196 commentary to line 12.

suffered from eye disease ...” ([diš u]m-mi Ḫa-<sup>r</sup>am-mu<sup>1</sup>-ra-pi igi<sup>II</sup>-šú gig <sup>he-pi</sup>), followed by a recipe.<sup>97</sup> 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.<sup>98</sup> According to my own collation, however, I would like to suggest an alternative reading of the damaged line: [ina] <sup>r</sup>u<sub>4</sub><sup>1</sup>-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’.<sup>99</sup> 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).<sup>100</sup>

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 ge<sub>6</sub> 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.<sup>101</sup> 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<sup>II</sup>-šú a-pa-a-a a-šá u ér šub.šub-a na-ṭa-la  
 17 mu-uṭ-ṭu ana ti-šú<sup>šim</sup>šeš ú babbar u<sub>5</sub> arkab<sup>mušen</sup>  
 18 mun eme-sal-lim<sup>šim</sup>gúr.gúr ú a-ši-i ú.kur.ra(šimbirida)  
 19 7 ú.hi.a šeš igi.4.gál.la.ta.àm ina igi<sup>d</sup>tutu  
 20 ina<sup>gš</sup>érin lá-al ina lâl súd igi<sup>II</sup>-šú mar  
 21 man-da ta-bi-la tu-ṭep-pi-ma ina-eš  
 22 te-qit igi<sup>II</sup>.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*’,<sup>102</sup> *emesallu*-salt, *kukru*-aromatic, plant for *ašû*-disease, *ninû*-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 4<sup>th</sup> century BCE, which probably belonged to the library of the descendants of Ekur-zakir, a family of *āšīpus*, reads as follows:<sup>103</sup>

- 10 ½ gín u<sub>5</sub> arkab<sup>mušen</sup> ½ gín ú babbar 15 še mun eme-sal-lim  
 11 ḥab ina giš.gi<sub>6</sub> ḥád.du tu-lam šum<sub>4</sub>-ma kúm ina ì ḥal-ša  
 12 šum<sub>4</sub>-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<sup>lú</sup>kurun.na la i-lem  
 14 li-te-qí ina gi<sub>6</sub>.gi<sub>6</sub> 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 7<sup>th</sup> 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-tu, šá bir-rat*).



eye salve was used in Uruk as a panacea for all eye ailments.<sup>104</sup> 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 7<sup>th</sup> and the 4<sup>th</sup> 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.<sup>105</sup> 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,<sup>106</sup> 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.<sup>107</sup> 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

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**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 1<sup>st</sup> 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 1<sup>st</sup> 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*).<sup>108</sup> It mostly contains recipes for various complaints of the head.<sup>109</sup> 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,<sup>110</sup>
- c) AO 11447 rev. 25–26, an early Neo-Assyrian excerpt tablet (*nishu mahrû*),<sup>111</sup>
- d) IM 132670 i 48–50, a Neo-Babylonian recipe collection from the library of the Šamaš temple at Sippar,<sup>112</sup> 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<sup>II</sup>-šú lugud ú-kal-la ana ti-šú<sup>sim</sup>šeš<sup>giš</sup>eren.BAD gazi<sup>sar</sup> a-nu-ha-ru (var. an-nu-ḥa-ra)  
 21 im.babbar<sup>ú</sup>HAR.HAR ú babbar 7 ú.ḥi.a àra-en<sup>113</sup> lip-pi tála-pap ana ša geštu<sup>II</sup>-šú 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).<sup>114</sup>

**108** See Pedersen 1986, 41–76. Col. iv 47 reads: *ina pu-ut* giš.zu akkad<sup>ki</sup> 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” (<sup>lu</sup>a.ba bal.til<sup>ki</sup>, *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* àra<sup>l</sup>-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*.<sup>115</sup> 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.<sup>116</sup>

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,<sup>117</sup>
- C BAM 116: 4–8, a small excerpt tablet for the preparation of a treatment.<sup>118</sup>
- D The tablet from Nineveh containing the remedy is  
BAM 431 (= K. 9684+9999+Sm.341+Rm.328)<sup>119</sup> 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 <sub>4</sub> úníg.bùr.bùr [.....] / illu šim <sup>[m]</sup> buluḥ
B 14	úníg.bùr.bùr úníg.sù.sù illu šim <sup>[m]</sup> buluḥ
C 5	úníg.bùr.bùr úníg.sù.sù illu šim <sup>[m]</sup> buluḥ
D 43–44	na <sub>4</sub> ú[x n]jumun ú <sup>a</sup> zal-la / šim <sup>[m]</sup> šeš [illu] šim <sup>[m]</sup> buluḥ
A iv 30'	[.....]
B 15	na <sup>4</sup> peš <sub>4</sub> .anše šika nunuz gá.nu <sub>11</sub> <sup>mušen</sup>
C 6	na <sup>4</sup> peš <sub>4</sub> .[anše] šika nunuz gá.nu <sub>11</sub> <sup>mušen</sup>
D iv 44–45	na <sup>4</sup> peš <sub>4</sub> .anše / šika nunuz gá.[nu <sub>11</sub> <sup>muš</sup> ] <sup>en</sup>
A iv 29'/ v 1	ka.a.a[b.ba ...] / ... 9 ú. meš <sup>7</sup>
B 16	šim <sup>[m]</sup> šeš ka.a.ab.ba 9 ú.meš
C 7	šim <sup>[m]</sup> šeš ka.a.ab.ba 9 ú.meš
D iv 45–46	ka.a.ab.ba / 9 ú
A v 1–2	[mu-ši <sup>7</sup> ] / lat-ku-ti ina kaš lu geštin n[ag.meš]
B 17	mu-ši lat-ku-ti ina geštin nag.meš
C 8	mu- <sup>7</sup> ši <sup>7</sup> [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, *puquṭtu* 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”<sup>120</sup> (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

<sup>120</sup> 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 1<sup>st</sup> 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.<sup>121</sup> This might be understood as a kind of guarantee of efficaciousness.<sup>122</sup> 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-

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**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.” (tu<sub>15</sub> 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. 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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